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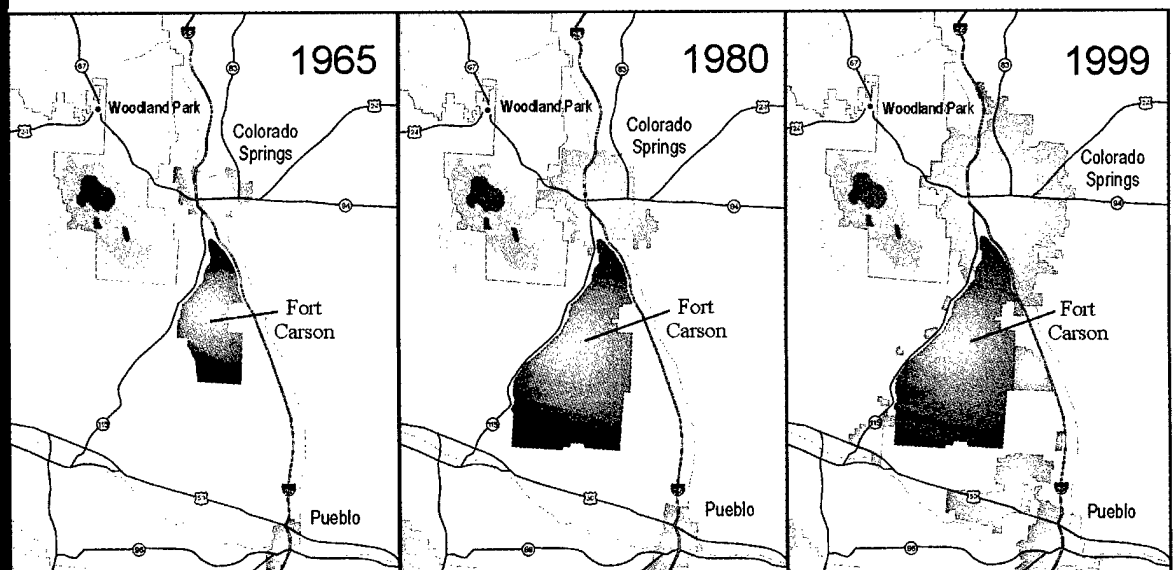
Urban Encroachment of Military Lands

Military Installations at Risk

Brian M. Deal, Diane M. Timlin, and William D. Goran

January 2002

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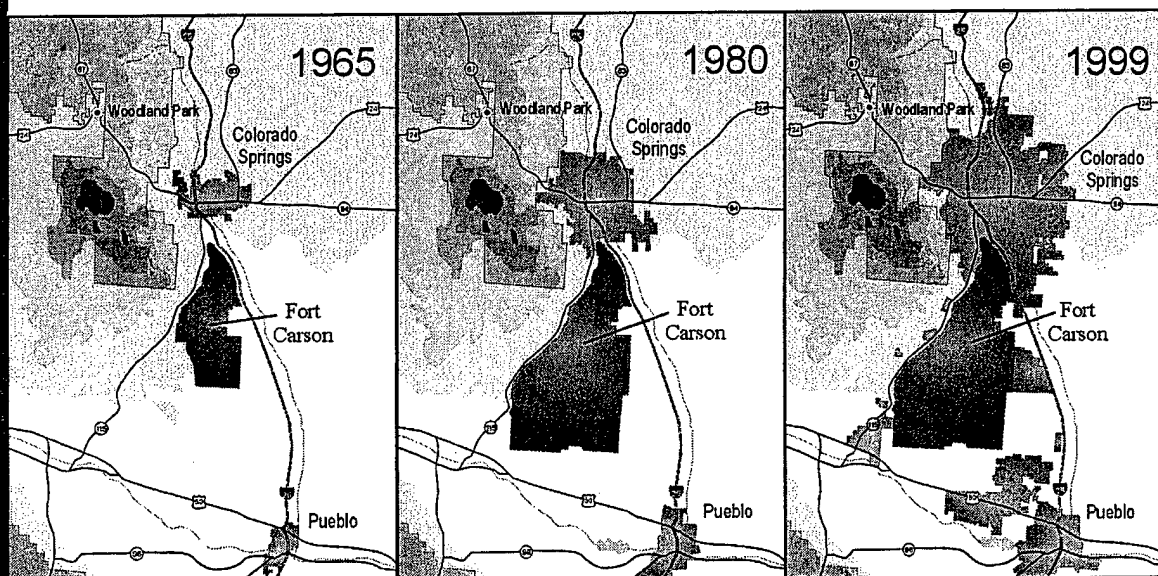
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Foreword

This study was conducted for Headquarters, U.S. Army Corps of Engineers (HQUSACE) under Project 622720A896, "Base Facilities Environmental Quality"; Work Unit, CFE, Task T141, "Environmental Indices & Metrics." The technical monitor was William D. Goran, CEERD-CV-T

The work was performed by the Energy Branch (CF-E), of the Facilities Division (CF), Construction Engineering Research Laboratory (CERL). The CERL principal investigator was Brian M. Deal. Thomas J. Hartranft is Chief, CEERD-CF-E, and L. Michael Golish is Chief, CEERD-CF. The associated Technical Director was Gary W. Schanche, CEERD-CV-T. Part of this work was done by Diane M. Timlin, of the Geographic Modeling Systems Laboratory, University of Illinois at Urbana-Champaign, (UIUC) under contract No. DACA88-99-D-0002. The technical editor was William J. Wolfe, Information Technology Laboratory—CERL. The Director of CERL is Dr. Alan W. Moore.

CERL is an element of the U.S. Army Engineer Research and Development Center (ERDC), U.S. Army Corps of Engineers. The Commander and Executive Director of ERDC is COL John Morris III, EN and the Director of ERDC is Dr. James R. Houston.

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1 Introduction

Background

The U.S. Department of Defense (DOD) maintains over 10 million hectares of land to house and train troops, test weapons, and conduct readiness exercises. Military installations provide environmental benefits in terms of habitat protection for threatened and endangered species, and conservation planning of forestry, rangeland, and water resources. Installations are often seen as key contributors to local economies. They serve as significant sources of employment and consumers of resources, stimulate the development of housing, retail services and utilities, and attract other economic sectors in support of their operations.

Despite the economic and environmental contributions of military installations to their surrounding areas, areas of conflict sometimes arise between installations and local neighboring communities. Issues include land devaluation resulting from incompatible neighboring land uses, competition for resources such as water and utilities, and military operation by-products such as noise, pollution, and other hazards. Military installations are increasingly being asked to alter activities within their boundaries to alleviate these conflicts. For example, Camp Pendleton has restricted flight routes, Fort Sill has eliminated firing ranges, and Fort Carson has experienced threats to firing operations. These constraints have all resulted from local community conflict. The growing friction and restrictions to such operations and land use may put installations at risk for meeting mission requirements.

One hypothesis for the increasing risk is that exogenous effects of community growth escalate community-installation conflicts. As the local economy expands, land and other resources become scarce and competition increases. Eventually the installation's contribution to the community is surpassed by the community's need for more resources. Installation land becomes more desirable for development than for military use, and the installation is perceived as a barrier to continued local growth. As the community grows geographically closer to and economically more independent from the installation, the installation is increasingly at risk for external demands to restrict activities seen as detrimental to the community's values.

From a military perspective, the importance of understanding urban change is important for sustained mission operations. The continued availability of these land and related sea and airspace resources is critical for the sustainment of readiness and power projection capabilities. The rapid pace of urbanization occurring all across the United States threatens this availability. This dynamic urbanization results from both an increasing population and a dramatic increase in low-density development across previously rural and agriculturally dominated landscapes. In northeastern Illinois, for example, a population increase of 4 percent (1970–1990) resulted in a 46 percent increase in urbanized land uses.

If the exogenous effects of community growth are a significant source of risk to military land uses, installations must begin to evaluate what is happening “outside the fence line.” Identifying key measures that could indicate when an installation becomes at risk, and monitoring for those changes in the surrounding areas, would create a proactive, sustainable environment to protect critical existing assets.

Numerous public and private sector organizations have recently embraced the concept of sustainability (AIA 1996; DOE 1999; Kidd 1992; WCED 1987). An assessment of the current State of the DOD’s sustainable land-use planning policies—Sustainable Planning; A Multi-Service Assessment, was published in 1999 (EDAW 1999). The Secretary of Defense report describes current DOD land-use policies as limited to “those assets found within the installation boundary; they do not strongly support planning with a regional perspective.” The report concludes that sustainable development is most successful where cooperation between military and civilian communities is maximized. The focus of military planning must shift from a growth based, project-oriented analysis to a more integrated approach that provides sustainable solutions and strategies that support mission needs (EDAW 1999).

There is currently no explanatory model of installation risk from exogenous factors, nor is there a documented consensus about a sample of installations that are or are not at risk, to enable an empirical evaluation of at-risk factors. A clearer understanding of the spatial (and nonspatial) interactions between the military community, its planning policies, and the adjacent community is an important step toward resolving these issues and toward forming sustainable development strategies for both the civil and military communities. There is a need to focus on the development of an analytical system to improve the decisionmaking processes and land management practices of the military and adjacent private sector communities. This study was undertaken as a preliminary investigation into developing a rating system of DOD properties at risk from community-military conflict.

Objectives

The goals of this research were to:

1. Identify and evaluate indicators of risks to military lands due to exogenous effects of local area growth
2. Analyze military installations most at-risk from the urbanization and encroachment of adjacent land uses, with particular attention given to spatial strategies to determine and assess risk
3. Determine possible approaches to find and develop more sustainable solutions to current patterns of local area growth.

Approach

Preliminary work determined a limited set of demographic "risk factors." This early work was expanded to include work additional demographics, economic data and urbanization measures, and to allow comparison of results of including or excluding different factors.

Initial steps identified and characterized military installations at-risk from rapid urban growth. At the outset of the study, knowledge of recent conflicts prompted researchers to assume that certain installation properties were more at risk than others (i.e., known complaints had already been voiced in attempts to restrict activities or obtain compensation for nearby private properties). CERL technical points of contact (POCs) created a preliminary risk scale based on "expert knowledge." Camp Pendleton MC Base, CA; Fort Carson, CO; Eglin AFB, FL; Fort Benning, GA; and Fort Riley, KS were posed as a set of installations whose situations range on a relative scale from "most at risk" to "least at risk." The project tested the veracity of these assumptions, and attempted to place other installations along a risk scale to analyze the extent of the problem and to identify other areas for concern.

A variety of demographic, economic, and land use data were gathered and examined as potential risk indicators. Traditional data analysis and spatial modeling techniques were incorporated within the framework of geographic information systems (GISs). Several data summarization levels and spatial scales were evaluated to determine if different risk assessments might be derived, and to suggest monitoring approaches for continuing assessment.

The conceptual model focused on several potential points of conflict:

- relative contribution of the installation to the local economy
- competition with other economic sectors for resources
- physical dominance of land area within the region
- external effects of installation activities.

(Note that not all of these factors are included for reasons explained in this report.)

Scope

This project considered installations only within the continental United States (CONUS). A significant effort was required to derive a set of current DOD land holdings in a spatially referenced format. The data developed for the study borrowed from several sources; the final set included 301 individual parcels representing all branches of the military.

Because of a lack of any demonstrable risk cases or measures to serve as a calibration mechanism, the indices used in this work were derived using relative rankings. Comparisons were made among the installation properties studied, such that properties are identified as more at risk than others based on how a particular factor compares to others. As a result, this study uses an exploratory data analysis approach limited by the availability of data and by the lack of a "dependent" variable of risk.

Data evaluated as risk measures include population (U.S. Bureau of the Census), earnings (U.S. Department of Commerce), employment (U.S. Bureau of Labor Statistics), and urban development or statistical areas (U.S. Department of Agriculture and U.S. Bureau of the Census). All factors have a spatial reference, usually a county designation.

The study explored development of risk indicators at three scales: summary, county of residence, and area of influence. The summary level looked at aggregate data to develop a descriptive characterization of installation properties nationwide. This level evaluated properties by State, and served as a useful scale for developing the ranking and assessment approach. The county of residence level required associating each installation property with a home county, thus establishing a better association for the assessment of neighboring population, economic, and land use relationships. This level also included some noncounty local area factors such as the proximity of urban areas. County of residence was the most informative level for risk assessment considering the scope of this

study. The third level, local area of influence, is more expansive than county of residence because it considers all neighboring counties and additional time-series analyses for each installation. Because of the additional complexity, this level is an illustration limited to one property. It provides a useful comparison on how choice of scale affects the assessment of risk and the importance of detailed review.

Mode of Technology Transfer

This work is providing the basis to develop a dynamic spatial analysis approach to identify the relevant interactions between the military installation, the surrounding private sector community, and the ecology of the natural environment. The results of developed scenarios may then be used to analyze the environmental impacts and climate change implications of policy decisions, which will help create sustainability indices for a given locality or region, and ultimately inform a land-use assessment model (Figure 1). The relative risk ranking emerging from this study can also be used by services to help prioritize resources for installation/community studies (e.g., for Joint Land Use Studies [JLUS]).

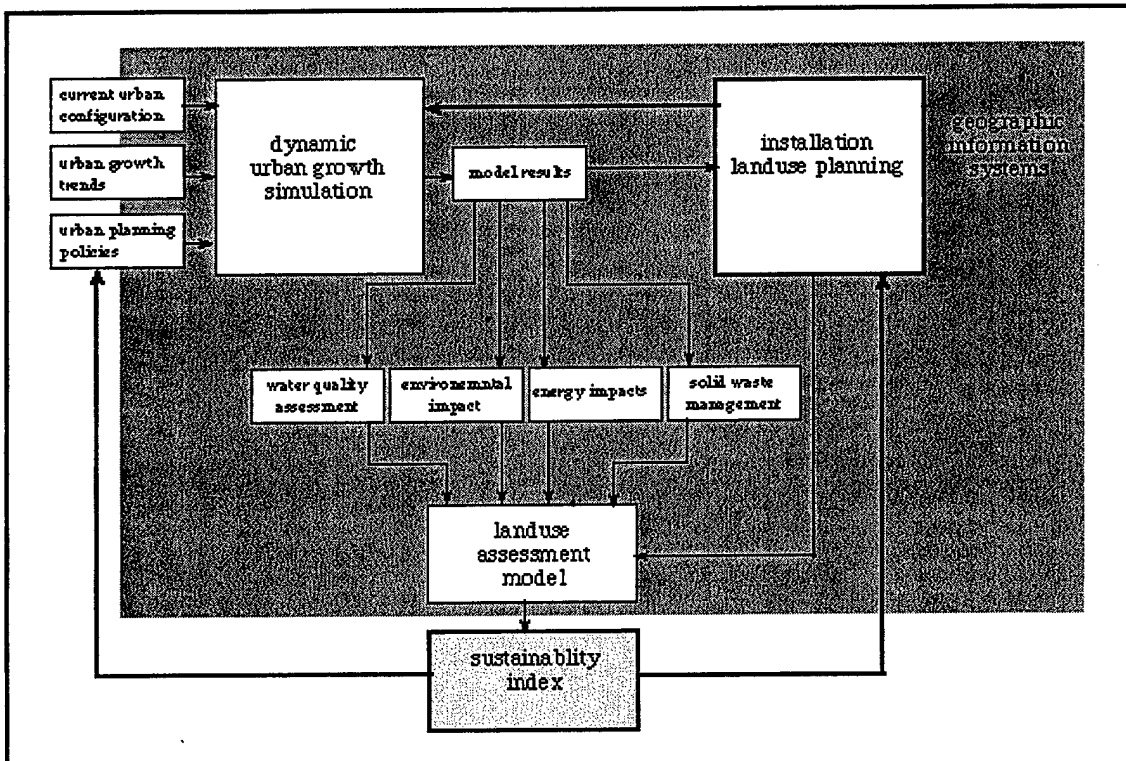


Figure 1. Proposed land-use decision support system.

2 Methodology

Development of the risk assessment involved five tasks:

1. Identifying a set of DOD properties to evaluate
2. Selecting types of data to evaluate as potential risk indicators
3. Gathering and preparing data for evaluation
4. Deriving potential factors and assessing of their usefulness
5. Identifying potentially at-risk properties.

Identification of DOD Properties

Creating a study set of DOD properties proved to be a complicated and time-consuming task. It was also critical to ensuring the legitimacy of any analysis and conclusions regarding risk. Two main sources used to identify military property holdings were:

- DOD Fiscal Year (FY96) Worldwide List of Military Installations (<http://www.defenselink.mil/pubs/installations/>)
- Federal Land Features of the United States, published by the U.S. Geological Survey (USGS) (<http://www.nationalatlas.gov/atlasftp.html>).

The DOD FY96 List was a text format identification of U.S. installations for all military departments. Abbreviated metadata for the DOD FY96 List described its currency as of the end of FY95 (30 September 1995). It also stated that there were numerous activities and smaller sites and properties not listed because they were not regarded as installations, as defined by each military department. The list contained names of 491 CONUS holdings and the following attributes:

1. State
2. Nearest city
3. Category code assigned by the military department: major (1), minor (2), support or other (3)
4. Number of assigned military and civilian personnel
5. Acreage
6. Principal unit or mission.

Not all holdings identified on the list were completely described with respect to the attributes.

The U.S. Geological Service (USGS) Federal Land Features data was a shape file, a proprietary geospatially referenced data format from the Environmental Systems Research Institute (ESRI); it provided location and extent as well as selected attributes. Metadata for the dataset described its currency as 1998, but its lineage began with data as old as 1970 and included several updates. The dataset contained information from many Federal agencies, and there was no indication of what data had been updated and with what reliability. An initial review showed that the DOD information was not current, mostly due to changes resulting from Base Realignment and Closure (BRAC). The dataset contained 507 CONUS military holdings with the following attributes:

1. Primary agency/bureau
2. Secondary agency/bureau
3. State
4. Name.

Because the project would evaluate risk from a spatial context, the USGS GIS data set was selected as the primary data source. These data were modified to represent a current set of installations, and was compared with the DOD list and other DOD information relating to property holdings. The DOD Internet web sites proved to be invaluable for verifying the current state of these facilities. Appendix A identifies some of the sites used for verification. Figure 2 shows a map of the final data set used for this study, which contains 301 physical properties in 45 States and the District of Columbia. (There are no properties for Minnesota, New Hampshire, and West Virginia.)

The study data set represents all of the active major and minor installations from the DOD List, and some National Guard and Reserve facilities. It also includes many ranges and outlying fields that are a subpart of an installation, but are geographically separate land holdings. The data set excludes any properties not represented in the original USGS set, since developing the spatially referenced features was beyond the scope of this project. Known missing facilities include: Army properties Fort Myer (VA) and Fort McNair (VA); Air Force Bases Arnold (TN), Columbus (MS), Keesler (MS), and Schriever (CO), and many of the research laboratories. (These were probably omitted from the USGS dataset because of their small size.) Appendix A includes a complete list of the properties included in this study.

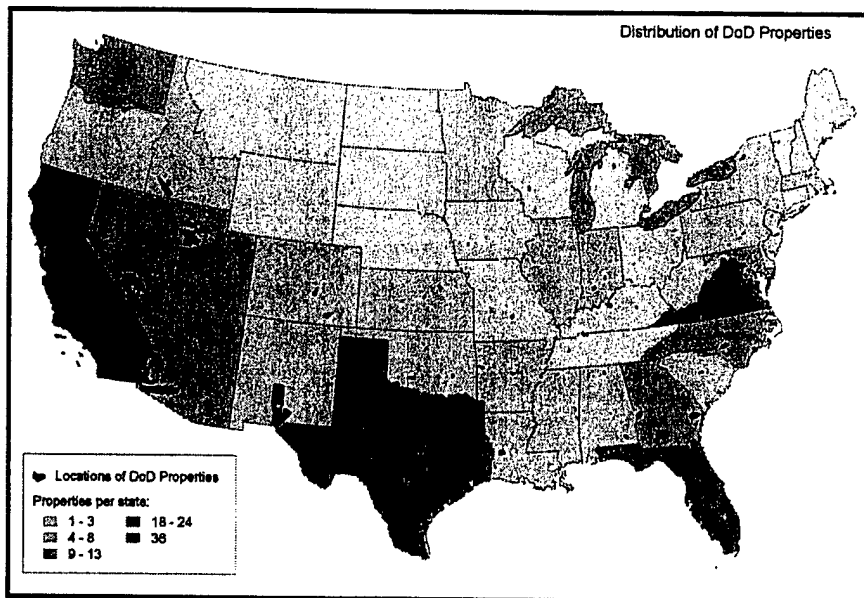


Figure 2. Distribution of DOD properties examined in study.

Selection of Risk Measurement Data

The study had two guiding assumptions: (1) that military property risk is associated with community-installation conflict, and (2) that conflict is caused by community growth. These assumptions pointed to three main stressors: community size, economic strength, and community proximity. Community size and economic strength become stressors when some threshold of relative strength of the community compared to the installation is exceeded. Increases in these areas indicate pressure for development of land to support residential, commercial, industrial, and support uses. (As described here, "support" uses include schools, safety, transportation, etc.) Proximity becomes a stressor when community growth increases the contiguity between the community and the installation; more and nearer neighbors increase the likelihood of incompatibilities and conflict. Given sufficient community size and proximity, the installation becomes an unintended growth limiter for the community.

There are many potential indicators for measuring these stressors. Indicator data appropriate for this study needed to be:

- available at a uniform scale for the entire study area to ensure consistency in comparisons
- recorded for multiple time periods to enable the evaluation of change
- prepared by a reputable source, such as a government agency or professional data vendor, and accompanied by metadata for quality assurance
- provided in a digital format, to accelerate data gathering and preparation for analysis.

Table 1. Stressors and indicators of community-installation conflict.

Indicator \ Stressor	Community Size	Economic Strength	Community Proximity
Population	Y		
Employment		Y	
Earnings		Y	
Developed Land (lands physically developed)	Y	Y	Y
Land Use Classification (lands classified as development use)			Y

Primary classes of indicator data selected to represent the identified stressors were population, employment, earnings, developed land, and land use classifications. Table 1 shows the relationship between the stressors and these selected indicators. Population data, available from the U.S. Census Bureau, is summarized at a number of scales and is available as true counts for decennial census years and estimates for interim years. Employment and earnings data are available from the U.S. Bureau of Labor Statistics, with time series detail as often as monthly. (This study used the annual summaries.) Employment is an average annual number of jobs, full-time and part-time; earnings are wages and salaries. Both are recorded at the four-digit Standard Industrial Classification (SIC) detail. (This study used the one-digit summaries.) These three factors could be obtained at the county, State, and regional/economic area scales.

Developed land and land use classification data are applicable to community proximity because they are spatially explicit and can be associated with the military properties based on relative geographic location. However, they are difficult to obtain, particularly for multiple time periods. While recent advances in remote sensing have prompted assessment of currently developed land, comparable historic data (especially for the spatial extent of this study) is sparse.

Only one indicator of developed land was available for multiple time periods. This is spatially explicit developed land areas information captured by the Natural Resources Conservation Service's National Resources Inventory (NRI). The NRI uses a statistical sampling approach to collect information on land cover and use, soil erosion, habitat diversity, conservation and resource protection practices for more than 800,000 sites throughout the United States. This information is collected every 5 years (beginning in 1982) and summarized to various scales. Information used for this study describes land as developed (urban areas and rural transportation land), cropland, grazing land, or forested land. At the time of this study, only State-summarized information was available.

For the county of residence scale study, developed land is obtained from the USGS North American Land Cover Characteristics data set. This is a grid map of 24 land use types at a 1 km spatial resolution; the original imagery used for the classification dates from 1992 and 1993. The data contains one classification of developed land, urban, and built-up land. Though the resolution is a limitation, this source is a better indicator of actual land use than the other classification indicators (described below) since it is based on physical characteristics rather than population census data.

The selected land use classification data are products of the decennial census and are only available digitally for the 1990 period. Two data sets used to measure land development are the location and extent of urbanized areas (places of more than 50,000 persons) and locations and populations of cities (places of more than 10,000). Data classifying land use are county designations as metropolitan statistical areas (a Census accounting unit classification) and the urban influence (UI) classification developed by the Economic Research Service of the USDA. The UI classification uses the Census metropolitan statistical area (MSA) designations and the population size of significant urban areas to rank all counties in the United States on a nine-category scale representing degree of urbanization.

In addition to the exogenous data, information was collected to represent the military economic contribution to the study area. Only limited data was readily available from the DOD (per State summary of contract awards, payroll, and personnel records). County-level information on military earnings and employment was available from the main data source (described below). This data summarizes information not only from the four main service branches (Army, Air Force, Marine Corps, Navy), but also includes National Guard, Reserves, and Coast Guard operations, and both active and retired personnel. Thus the military information for a county may be misleading in that it is not limited to the effect of installation properties.

Data Gathering and Preparation

The main source for population, employment and earnings data were the Regional Economic Information System (REIS), a digital data base produced by the U.S. Department of Commerce Bureau of Economic Analysis (BEA). At the onset of this project REIS contained data from 1969 through 1997; additional data for 1998 is now available. Besides its comprehensiveness and ease of use, REIS is a significant element of this study because it includes breakouts of Federal military earnings and employment as a special BEA classification. (It is not part of

the SIC and not available from other sources). REIS data can be selected by item type, year, and summary level (for example, National totals, State totals, individual county, economic area) exported to delimited text files, and imported into Excel or ESRI's ArcView GIS.

The NRI developed land areas data were downloaded from the website (www.nhq.nrcs.usda.gov/land/home.html). The State summary table was exported to a text file and reformatted for incorporation with other State summary data in Excel. The USGS Land Cover Characteristics data were downloaded from the website (www.nationalatlas.gov/atlasftp.html). The land use classification data were obtained from ESRI data and maps as shape files.

County data from the various sources were all referenced by standardized FIPS code. There were instances of coding mismatches. In a few instances, these were simply typographical errors. However, most mismatches were the result of REIS' modified reporting of earnings and employment data for Virginia. Virginia has numerous cities that are treated as independent from their surrounding counties; these independent cities are separately identified in the FIPS county codes and were represented in the county spatial data set. However, the REIS system uses a county equivalent reporting unit that combines independent cities with a parent county, and assigns these a modified FIPS code. To facilitate the matching of data to counties and their related military properties, a revised county spatial data set was created that combined the independent cities and added the REIS FIPS code as a new attribute.

Once the county referencing was resolved, each military property needed to be associated with its county of residence. For many properties, this was accomplished with a spatial join using the GIS. For properties that crossed multiple counties, the county of residence needed to be individually reviewed. First the installation's web site was checked for a reference, or digital maps of the area were reviewed for the location of a main cantonment. The property's county of residence was also checked by examining the REIS military earnings and employment data for the surrounding counties and choosing the county with the dominant values.

Derivation of Factors

The raw indicator data were rarely used directly as factors because they often proved to be misleading in the comparative ranking approach used for risk assessment. For example, at the summary scale (simply comparing by population) Alabama and Arizona are similarly developed. Based on this criteria, the mili-

tary properties in those States would appear to be equally at risk. However, if population is examined with respect to the total area or its distribution within that area, Arizona has a lower average population density because of its larger area, but actually has a larger metropolitan area compared to its total size. This additional information affects the degree of potential risk for properties within those two States.

All source data were transformed to create better measures of the stressors for a ranked approach to risk assessment. Transformation techniques included simple net change between time periods, rates of change between time periods, and various other ratios. In the case of population measures, creating a ratio with area produced density, a better factor for comparing degree of urbanization than population alone. For economic values such as earnings or spending, creating a ratio with number of employees produced per capita values, a better indicator of relative economic strength than the gross dollars alone. For data available for different classifications (population type, industry type, spending type), one classification could be expressed as a ratio of another or of a total to derive relative percent of contribution or influence.

Transformations of land development and land use classification data were limited because of the lack of time series coverage. However, this data's critical advantage over population and earnings information was its more explicit spatial reference. This enabled the development of distance-based factors at the county of residence scale. The GIS was used to measure the proximity of urban areas to the military properties, and to determine a net urban population within specified distances.

The military economic data were treated similarly to community indicator data. A typical transformation was to create a ratio of a military factor with comparable totals (military employment compared to total employment) to obtain a measure of the military's influence within the region.

At each study scale, the factors derived from transformed indicator data were then evaluated and a reduced set selected to represent the stressors. Lacking significant examples of at-risk properties to calibrate a selection process, factor evaluation for this study employed some best judgments of the investigators. The selection process reduced the set of potential factors to a manageable set that:

- produced a range of measurement with differentiation across the study set
- were not redundant but added information for risk assessment
- as a set, provided the best possible representation of the three stressors.

Only the factors used in the final risk assessment are presented in Chapter 3 ("Results") and in Appendix A to this report.

Identification of At-Risk Properties

The final steps in the assessment were to identify at-risk properties. A simple approach of comparative ranking was taken for this first evaluation:

1. *Rank order the properties (or States in the case of the summary level) by each factor, with a ranking of "1" indicating the property/State most at risk.* All factors, exogenous and DOD, are ranked. Risk might be related to the highest value (population growth rate) or lowest value (DOD contract dollars awarded) depending on the particular factor.
2. *Select at-risk properties as those that ranked high for at least one factor under each stressor.* The cutoff point for factors varied by level of study. In determining whether a property was at risk, only exogenous factors (those describing the community outside the installation) were considered.
3. *Determine a level of risk for at-risk properties.* Determination of level of risk is based solely on the DOD factors. This incorporates the assumption that the relative contribution of the military to the region influences the degree of conflict and risk. If the presence of the military in the region contributes significantly to the region's economy, then this economic benefit is assumed to reduce the risk (assigned a risk level of Low). If the contribution is insignificant, then the benefit is assumed to enhance the risk. (It is assigned a risk level of High.) An average contribution (a middle ranking for the DOD factors) is assumed to have no effect on risk. (It is assigned a risk level of Moderate.)

Spatial Analysis

Analysis at the county level can be problematic as installations in counties of high growth and urbanization may still be somewhat isolated from the major urban centers. For these installations, there may still be sufficient opportunity to develop coordinated community planning efforts between the installation and surrounding communities to avoid future land use problems. For many installations, however, the opportunities may have already been greatly diminished.

Fort Carson, CO is a prime example of an installation where urban growth is now poised to constrain military land use. Fort Carson is located just south of Colorado Springs along the Front Range of the Rocky Mountains; it was estab-

lished as an Army training site during World War II. Figure 3 shows three time steps illustrating the growth of Colorado Springs in relation to Fort Carson.

As the maps indicate, Colorado Springs has grown rapidly. The urbanized area has spread out in every direction. By the late 1980s, urbanization was knocking on the installation boundaries, and during the 1990s the sprawl of greater Colorado Springs (and suburbs) severely impacted base operations. This problem is not limited to Army facilities.

A recent "alternative futures" study was conducted for Camp Pendleton Marine Corps base in California (Stenitz 1997). Camp Pendleton is situated on the Pacific coastline along the rapidly growing corridor between Los Angeles and San Diego (Figure 4). The study attempts to determine likely alternative growth patterns for the surrounding community based on inputs from local community members and planners, and to assess some of the likely impacts on the installation. Results of the study include: a projected increase in the flooding potential on the installation, impacted base operations and natural resource constraints, a reduction in off-post local threatened and endangered species (TES) habitat, and a resultant increase the importance of the TES habitat provided by Camp Pendleton.

The urbanization of adjacent land uses and the constraints that exist inside the fence line have created an increasingly complex and dynamic problem for the military community. Anticipating future urban growth scenarios would greatly improve an installation's ability to provide adequate lands for the maintenance of defense capabilities.

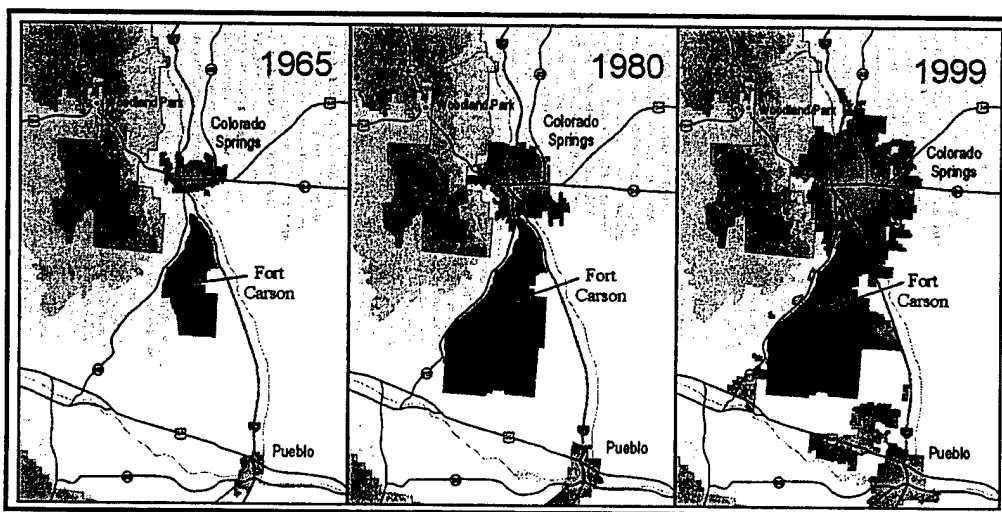


Figure 3. Colorado Springs, CO, geographical growth, 1956-1999.

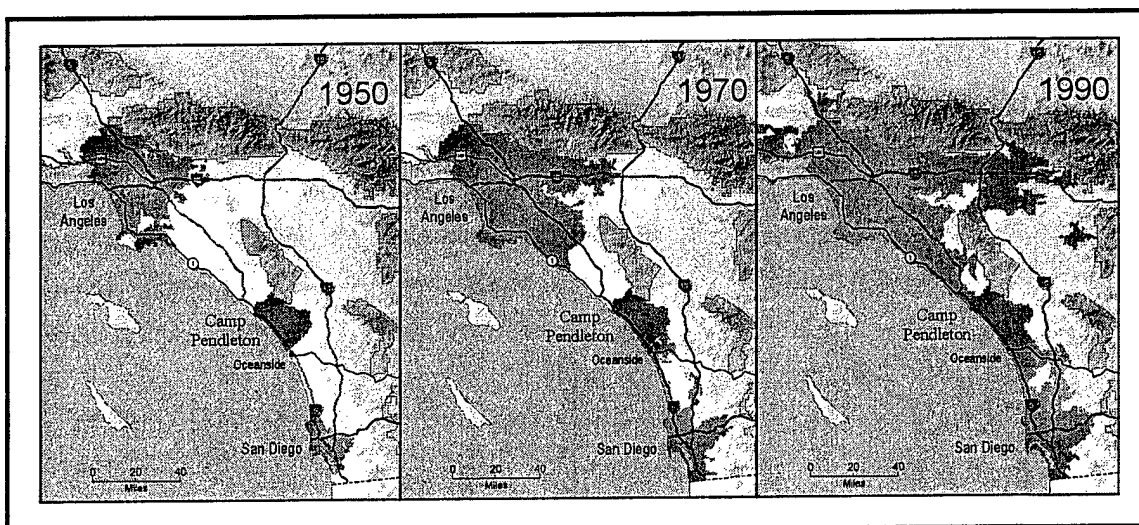


Figure 4. Los Angeles/San Diego geographical growth, 1950-1990.

Environmental and Economic Impacts

Another important criterion relevant to the interactions between the military and the surrounding community is the extent to which a specific installation impacts a local economy. Historically, large military installations represent high economic multiplier effects in the local economy. In the 1950s for example, Fort Carson was an important player in the local economy. Recently however, the rapid expansion of Colorado Springs has decreased the direct and indirect economic impacts that Fort Carson represents in the area. In California, the percentage of Military employment to all employment State-wide has dropped from over 2 percent to less than 1 percent (Figure 5).

Rapid economic expansion eventually causes the community's perceived value of the installation's economic contributions to compete with the community's "value" for other uses for the installation lands. There are several clear examples where the economic value of the installation was overshadowed by the community's interest in alternative land uses. The Presidio of San Francisco, CA gives a good example. When the Presidio was withdrawn from military use the local community, anxious to use the prominent site for other uses, welcomed the change. Fort Sheridan on the Lake Michigan shoreline north of Chicago underwent a similar transition. In both cases, the economic value of the installation was no longer significant to the local economy—and the communities were anxious to use the military lands to pursue other opportunities. (Note that these value-based perceptions are influenced by other factors, such as the level of concern for National and local security.

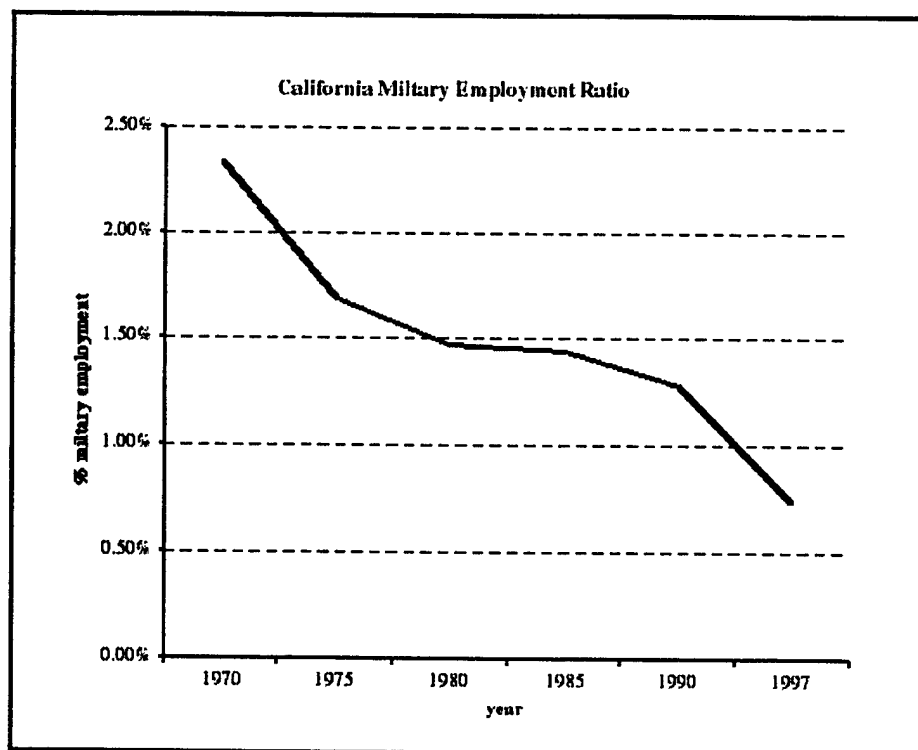


Figure 5. The percentage of persons employed by the U.S. military in California.

The installation may be perceived to impede the community's aspirations for growth when the percentage of economic influence that the installation has in the area is diminished. Pressure builds to bring the public lands into private control through installation privatization, asset sales, or closure.

Although the localized economic impacts of the installation may be perceived as negative, the overall benefit to the region may be an important consideration. The State of California has recognized the importance of retaining a military presence in the State despite localized pressures, and drafted the Defense Retention and Conversion Act of 1999. The focus of the act is to address the mission limitations and constraints caused by rapid urbanization in California. One of the stated goals of the act is to ensure "the long-term protection of lands adjacent to military bases." Similar bills are being worked in other State legislatures.

The issue is also being played out in the National press. On 4 October 1999, the *USA Today* featured an article "Military Bases Fight Suburban Sprawl" that discusses air flight constraints at the Barry M. Goldwater Range in Arizona, the Mountain Home Air Force Base in Idaho, and Marine Corps bases in San Diego and the Mojave Desert.

Land Use Assessment

The derived social, ecological, environmental, and economic impacts inform computational land-use assessment tools. The development of these tools is an important component in evaluating urbanization impacts. Land use assessment tools that utilize conceptual stock aggregation and spatial evaluation techniques quantify the built environment using archetypes and impact profiles. Existing methodologies can be classified into two basic categories—Urban Environmental Management Systems (EMS) and Urban Forecasting Information Systems (FIS) and are represented by available tools including: SmartPlaces (Skiles 1998), Toolkit for Integrated Resource Accounting (TIRA) (Hood and Moffatt 1998), and Social Costs of Alternate Land Development Scenarios (SCALDS) (ECONorthwest and Brinckerhoff 1998). These EMS and FIS tools currently lack military infrastructure and general military installation archetypes. They must be modified and compiled into a comprehensive land use assessment system that incorporates the impacts of land use changes of the built and natural environments by attaching social and economic costs and by tracking resources and emissions.

Scott Campbell discusses strategies for operationalizing environmental impact assessment and sustainability by first describing the tension between economic growth, environmental protection, and social equity. He notes that, “planners need better tools to understand their cities and regions not just as economic systems, or as static inventories of natural resources, but also as environmental systems that are part of regional and global networks ...” This implies the use of large scale “ecosystem modeling” techniques for realizing the environmental implications of planning actions.

Arguments in favor of dynamic (spatial) models to inform the process of societal change and establish causal relationships have been made (Costanza, Daly, and Bartholomew 1991; Forrester 1969; Hannon and Ruth 1994; Ruth and Hannon 1997; Sklar and Costanza 1991). More specifically, modeling provides assistance in managing uncertainty, feedbacks and lags, group decisionmaking, and comprehensive learning (authentic tasks, cognitive apprenticeship). Models and model development benefits can:

- increase awareness in our understanding of fundamental systems processes (it allows the identification of the most important parameters in the system)
- provide a system memory
- reveal “normal” system performance
- allow testing of “what-if?” scenarios (experimentation)
- provide quantitative results.

The process of modeling can also facilitate communication through both model results and the model structure to find possible emergent properties of a system.

Simulation modeling can help begin to ascertain future military urban encroachment through the development of policy-based land use change scenarios. These scenarios can help to ascertain the possible environmental and planning impacts of the urbanization problem. Dynamic models can inform the community/installation dialogue, and help in the development of regionally based sustainable indices to encourage sustainable and well coordinated planning solutions.

3 Results

Summary Study

The summary level study determined risk collectively for all properties within a State, evaluating potential community-installation conflict with factors derived from State totals for population, earnings, etc. This generalized perspective does not accurately reflect the proximity of communities and installations. However, there were several advantages to this study scale. First, the summary scale reduced the number of comparisons (46 States versus 301 properties) and made it easier to collect data (because of the much greater availability of State level data than site-specific data), develop factors and rankings, and test the assessment approach. Second, certain information, particularly the time series land development information from the NRI, was only available at this summary level. Finally, experimenting with multiple scales allowed for comparisons among methods as well as factors, and provided additional insight into the directions for future investigations and monitoring for change.

Factor Development

Exogenous indicator data were total population, metropolitan population, per capita earnings, metropolitan area, and developed land from the NRI. The original indicator data and related factors are presented in Appendix A. Most indicator data were transformed into better stress measures by considering data with respect to its spatial extent.

Indicators for the community size stressor were total population, metropolitan population (number of persons living in MSAs in the State), and two measures of urban area—MSA (in square miles) and developed land (in acres). Four factors were used for the risk assessment. Total population and State area were transformed into a density factor. Metropolitan and total populations were transformed into a ratio indicating the degree of urbanization. The urban area measures were combined with State area to produce two factors representing the physical extent of urbanized area within the State.

Indicators for the economic strength stressor were growth in population, per capita earnings, and land development. Five factors were used for the risk assess-

ment. Growth factors were derived from time series data as the percentage increase in the data from one period to the next. For population and earnings, two time periods were examined: 1990 to 1997, and 1980 to 1990. For urban development growth, NRI urban land data for the time period 1987 to 1997 was used.

One factor for the community proximity stressor was derived in a two-step process. First the GIS was used to identify all installation properties either partially or completely located within MSAs. For each State, the number of properties within MSAs was compared against the total number of properties to derive a ratio, percent of installation properties within MSAs. The ranking system was slightly modified for this factor because so many of the States had identical scores. The 12 States with 100 percent of their properties located within MSAs all received a ranking of "1." While this caused 22 States to receive top rankings, it was appropriate since there was only one indicator of proximity; even Maryland, the 10th ranked State, has 70 percent of its properties located in metropolitan areas.

Indicators for DOD stressors were contract awards, payroll, and civilian and military employees. Contract spending was used directly to indicate the level of DOD contribution to the State economy. For payroll, a ratio of dollars per employee (military and civilian) was used. Gross earnings alone was thought to be misleading, as differences in the number of personnel, housing arrangements, existence of exchanges and recreational facilities on a property would alter the level of earnings that entered the local economy. The ratio used is a per capita earnings figure, and is an indicator of differences in the degree to which DOD employees can contribute to the local economy. The final factor was a ratio of employees per property area. This is a density figure and indicates whether the potential per person contribution to the local economy is significant compared to the amount of land withdrawn from local use.

Results

Table 2 lists the results of the summary-level risk assessment. Eight States with a total of 99 DOD properties were determined to be at risk from community conflict, and 13 properties were assessed at a high risk level. The exogenous factors were all ranked in descending order by factor value, where the highest value indicated the most risk (factor values are given in Appendix A). Only the top 10 ranked States for each factor were considered in risk assessment. (This is approximately the top 20th percentile for the set of 49 States.)

Table 2. Summary-level risk assessment.

State	DOD Prpty Cnt	Community Size				Economic Strength					Prox'ty % Prpty in MSA	At Risk	DoD			At Risk Lvl
		Popn Dnsty	Metro Popn %	Metro Area %	UrDvlp Area %	Population Growth		Earnings Per Capita Grwth		UrDvlp Grwth			Cntrct \$ Amt	Pyroll \$ Per Empl	Empl Per Area	
						90-97	80-90	90-97	80-90							
AL	7										1					
AZ	13		10	9		2	2				7	Y			3	H
AR	4							4			1		10	40		
CA	36		4	7			4				6	Y	49		10	M
CO	8					5		3			4					
CT	1	5	9	5	4				2		1	Y			43	L
DE	1	8		10	6						1		5		40	
DC	3	1	1	1				5	7		1	Y		6	45	M
FL	24		5	8	7		3			7	2	Y	46			L
GA	11					6	7	9	8	1	9		43	5		
ID	5					3							7			
IL	4										1			8	44	
IN	5														7	
IA	2													45	9	
KS	6													4		
KY	3									10				1		
LA	4							8			9					
ME	2								6	9						
MD	10	6	6	6	5				10		10	Y	42			L
MA	5	4	3	4	3				1		1	Y	45			L
MI	2													41	6	
MN														44		
MS	5							1							39	
MO	3												44			
MT	2												2			
NE	2														41	
NV	10					1	1								1	
NH							5		5					49		
NJ	7	2	2	2	1				3		1	Y				M
NM	6					10	10			4					2	
NY	5	7	7						4				41			
NC	11				10			7	9	8				3		
ND	2												6	2	38	
OH	3	9			9						1					
OK	5													7		
OR	4					9		10					9	47	8	
PA	6	10			8					6			40			
RI	1	3	8	3	2						1				42	
SC	7									3				10	36	
SD	1												3			
TN	2							6		5				46		
TX	18					8	6				8		47			
UT	9					4	9	2							5	
VT	2										1		4	48		
VA	22										5		48			
WA	9					7	8				3					
WV										2			8	43		
WI	2													42	4	
WY	1										1		1	9	37	
Prptys:	301	53	105	101	69	93	136	61	55	72	194	99	22	53	89	
% of Properties:		17.5	34.8	33.4	22.8	31.1	45.4	20.5	18.5	24.2	64.6	32.8	7.3	17.9	29.5	

All installation properties within a State are considered to be at risk from community-installation conflict if the State had, for this analysis, a top 10 ranking in at least one factor for each of the stressors. For example, the 13 installation properties in Arizona are determined to be at risk because the State is ranked for two community size factors, two community growth factors, and the proximity factor. The 11 properties in Georgia were determined at this level of analysis to be at relatively lesser risk because the State is not ranked for community size factors.

The DOD factors are only incorporated for determination of risk level. The DOD factors were all ranked in ascending order by factor value, reflecting that risk is associated with low values rather than high values. For example, the lowest contract dollars awarded to a State (small DOD contribution to the economy) would put the properties in that State at the highest risk relative to other States (factor values are given in Appendix A). Table 2 shows both the top 10 (most risk) and the bottom 10 (least risk) rankings. The 13 properties in Arizona are considered to be high risk because of a top ranking for one of the DOD factors.

County of Residence Study

The county of residence level study determined risk by associating properties with a home county and evaluating potential community-installation conflict with factors derived from county characteristics. This scale of analysis provides a more accurate representation of installation properties and their surroundings.

Some of the same indicators (population, per capita earnings) from the summary scale carry over to this study. However, other indicators for the extent of urbanization and DOD influence are included. Two urbanization indicators (cities and urbanized area) were available with explicit spatial references—a single point location for cities, and a location and extent for urbanized area. These were integrated with the locations of military properties in the GIS, and distance analysis functions were used to develop factors reflecting the unique relationship between each property and its surrounding urban areas. Thus, while some of the factor data are identical for all properties within one county, the final property level risk assessment does reflect unique community-installation relationships.

DOD indicators are the REIS military earnings and employment information. Since this information cannot be directly related to any installation property, is not limited to active duty installation personnel, and does not include civilian employees of installations, the derived factors may over- or understate the economic influence of the military in the area.

Factor Development

Two exogenous indicators from the summary level study (population and per capita earnings), were used for the county of residence study. Additional indicators were city population, urban and built-up land, and urbanized areas. Appendix A gives these indicator data and related factors. Indicator data were often used directly because they provided relevant information about the current state of communities. Indicators were also transformed into other stress measures by considering data with respect to change (time series), location, and the size of the county of residence.

Indicators for the community size stressor were total population, city population, and urban and built-up land. Four factors were used for the risk assessment. Total population for 1997 was used as a factor because it provided a current measure of size compared to the other data available for this study scale. Total population and county area for 1997 were transformed into a density factor. Cities were matched to military properties using the GIS and the population data summarized to describe city population within 20 miles of each property. Figure 6 shows how city population was determined for three properties in the Atlanta area. This is used as a community size factor because it measures the number of people in neighboring communities. Though it is constrained by proximity, it is not used as a proximity factor because the cities are represented as points and do not completely describe the physical relationship to military properties. The final factor was a ratio of urban and built-up land (1992-1993) relative to the county area.

Indicators for the economic strength stressor were growth in population, growth in per capita earnings and total per capita earnings. Four factors were used for the risk assessment. Growth factors were derived from time series data as the percentage increase in the data from one period to the next. For population, two time periods were selected: 1990 to 1997, and 1985 to 1990. For per capita earnings, one growth rate for the recent time period was used. Per capita earnings were also used directly as a factor, since there was sufficient differentiation in the values across properties and the related ranking indicated areas with currently strong economies. There was no time series developed land data available for this study scale, and therefore no measure of strength indicated by physical growth in terms of land development.

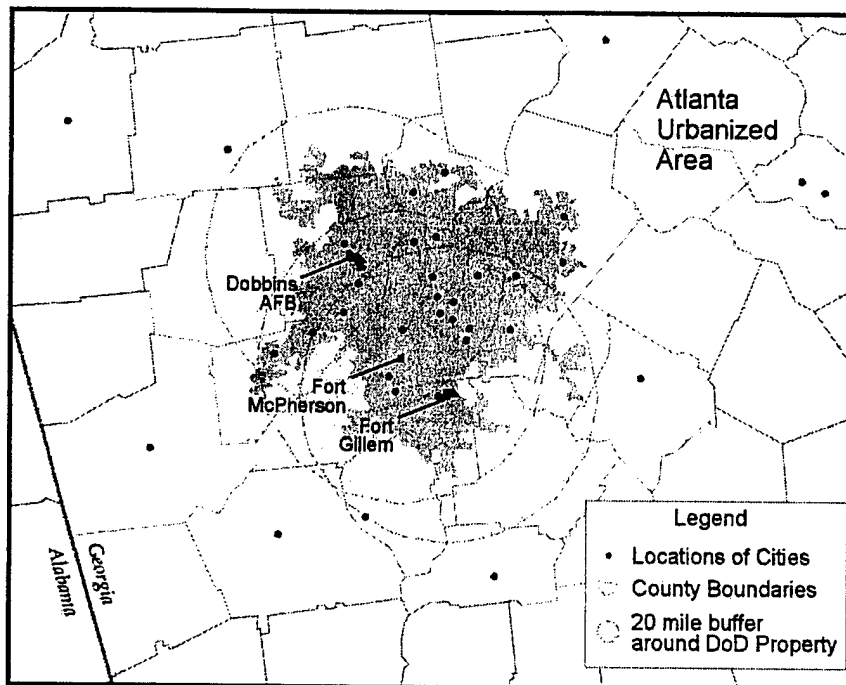


Figure 6. Example of city population and urbanized area proximity for Atlanta, GA area.

Table 3. Proximity classification scheme.

Proximity Class	Relationship of Property to Urbanized Area (UA)	No. of Properties
1	Completely contained within UA	35
2	Partially within or adjacent to UA	101
3	Within 5 miles of UA	33
4	Within 5 to 10 miles of UA	21
5	Within 10 to 20 miles of UA	20
6	More than 20 miles from UA	91

One factor for the community proximity stressor was derived from urbanized area data. Using the GIS distance functions, a six classification scheme was developed to represent the relationship between properties and their nearest urbanized area. The classification scheme is described in Table 3. Given the resolution of the available data, a more specific distance measure was inappropriate.

Indicators for DOD stressors were military employment and total employment, both identified in the REIS information. Military employment and total employment for 1997 were transformed into a ratio indicating the current level of military contribution to the local economy. Military employment for 1997 was also compared to military property area to create a local military density figure. The final factor was a change in military employment between 1985 and 1997. This ratio shows the relative level of decline (and in some rare instances, growth) in the military presence in the area.

Results

Table 4 lists the results of the county of residence level risk assessment. The table is organized by service branch and then by State. Eighty one DOD properties were determined to be at risk from community conflict, of which 33 were assessed at a high risk level. The breakdown of at-risk properties by service is: 24 Air Force (30 percent of AF properties studied), 21 Army (10 percent), 2 Marine Corps (12 percent) and 34 Navy holdings (36 percent).

The exogenous factors were all ranked in descending order by factor value—where the highest value indicated the most risk (factor values are given in Appendix A). For factors derived from county level indicators (e.g., population, earnings, employment) rankings were assigned to the counties rather than the properties. For example, Fort Dix and McGuire AFB have identical rankings for many of the community size and economic strength factors since both are located in Burlington County, NJ. The top 42 ranked counties/properties for each factor were considered in risk assessment. (This is approximately the top 20th percentile for the set of 214 resident counties.)

There were two factors not related to county of residence that required a modified ranking selection process. The first, city population within 20 miles, resulted in 231 unique values, including 45 properties that had no cities within the specified distance. In keeping with the 20th percentile breakpoint, the top 60 ranked properties for city population were considered in risk assessment. The second factor, urbanized area proximity class, prohibited differentiation of properties and required a completely different approach. Given the number of properties close to an urbanized area, and only one factor representing proximity, any property with a proximity class of 1, 2, or 3 was considered at risk for proximity.

Properties are considered to be at risk from community-installation conflict if they had a top ranking in at least one factor for each stressor. Table 4 may appear incomplete because it only shows properties that were determined to be at risk for all stressors. In many instances, property had top rankings for either community size or economic strength but not both, so they do not appear in the "at risk" list. Appendix A shows the top rankings for all properties.

Areas with significant numbers of at-risk installations include the Pacific Ocean coastal zone (19 properties), the Colorado front range (5 properties), the San Antonio, TX area (5 properties), and the Chesapeake Bay area (17 properties). Figures 7, 8, and 9 present three maps showing the western, central, and eastern United States and identify the location of at-risk properties by their county of residence.

Table 4. County of residence risk assessment—at risk properties.

Depl.	Property	Area (acres)	ST	Resident County	Community Size				Economic Strength				Proximity UA	DOD			At Risk Level	
					Population			UrDvlp County %	Population Growth %		Eam. Per Capita			Military Employment				
					Total 1997	Dnsity 1997	City (20mi) 1990		85-90	Growth% 90-97	% of Templ	Change 85-97		Per DOD Area				
AF	Little Rock AFB	7210	AR	Pulaski				38			23	35	2		39		H	
AF	Luke AFB	4199	AZ	Maricopa	3		22		13	34				2		32	153	M
AF	Davis-Monthan AFB	10633	AZ	Pima	19				41					2		207		L
AF	Travis AFB	7580	CA	Solana			58			8				2		33		H
AF	Edwards AFB	300723	CA	Kern	30					38				3			5	H
AF	March Air Reserve	6885	CA	Riverside	7		19		30	2				2	18	29		H
AF	Air Force Academy	18500	CO	El Paso	38				29		38			2	173	20		M
AF	Peterson AFB	1277	CO	El Paso	38				29		38			2	173	20		M
AF	NORAD COC Center	NA	CO	El Paso	38				29		38			2	173	20		M
AF	Bolling AFB	604	DC	Washington	35	1	5	1			32	8		1			167	L
AF	Cape Canaveral AFS	15435	FL	Brevard	42					21				2				M
AF	Patrick AFB	2341	FL	Brevard	42					21				2				M
AF	MacDill AFB	5631	FL	Hillsborough	15	34	27	32			40			2			138	L
AF	Dobbins AFB	1913	GA	Cobb	33	14	38	8	23	17		12		1		198		L
AF	Hanscom AFB	846	MA	Middlesex	8	11	8	15			36	6		2	40	12	163	H
AF	Selfridge ANGB	3070	MI	Macomb	18	12	11	9				40		2	11			H
AF	Pope AFB	1750	NC	Cumberland				40			3			2	205			L
AF	Kirtland AFB	52678	NM	Bernalillo	36			42			28			2				M
AF	Nellis AFB Sm Arms Range	4800	NV	Clark	12		55		2	4		34		3				M
AF	Nellis AFB	6400	NV	Clark	12		51		2	4		34		2				M
AF	Carswell Air Reserve Base	NA	TX	Tarrant	11	17	32	18				36		1	19	25	NA	H
AF	Randolph AFB	5044	TX	Bexar	10	26	33	29			24			2		18		H
AF	Lackland AFB	6754	TX	Bexar	10	26	35	29			24			2		18		H
AF	Brooks AFB	1310	TX	Bexar	10	26	34	29			24			1		18		H
Army	Camp Robinson	33000	AR	Pulaski				38			23	35		2		39		H
Army	DDD San Joaquin - Lathrop	724	CA	San Joaquin	34					35				3	10			H
Army	Camp Parks	2705	CA	Alameda	9	9	21	21				15		2	22	5	146	H
Army	Buckley ANGB	3832	CO	Arapahoe	40	42	17		38		22	9		2	38	199		M
Army	Fort Carson	137400	CO	El Paso	38				29		38			2	173	20		M
Army	Fort McPherson	487	GA	Fulton	22	19	39	7			10	5		1	16		166	M
Army	Camp Dodge	4400	IA	Polk		41		33				19		2	35	189		M
Army	Sunflower AAP	9542	KS	Johnson		33		31	39	29	29	7		3	36			H
Army	Devens Reserves Trng Area	5000	MA	Worcester	23		59					31		3	30			H

Dept.	Property	Area (acres)	ST	Resident County	Community Size				Economic Strength				Proximity UA	DOD			At Risk Level
					Population			UrDvp County %	Population Growth %		Earn. Per Capita			Military Employment			
					Total 1997	Dnsity 1997	City (20mi) 1990		90-97	85-90	Growth% 90-97	\$ 1997		% of Templ	Change 85-97	Per DOD Area	
Army	Natick Soldier Center	226	MA	Middlesex	8	11	18	15			36	6	40	12	163	H	
Army	Aberdeen Proving Ground	72500	MD	Harford			25			25						M	
Army	Fort Meade	5415	MD	Anne Arundel	39	24	3	30				17			148	L	
Army	Fort Bragg	160817	NC	Cumberland				40			3		205			L	
Army	Picatinny Arsenal	6493	NJ	Morris	43	29	41	27				1	1			H	
Army	Fort Monmouth	1101	NJ	Monmouth	31	20		22				10				M	
Army	Fort Dix	30997	NJ	Burlington				39				22		9		H	
Army	Camp Bullis	12000	TX	Bexar	10	26	34	29				24		18		H	
Army	Fort Sam Houston	3260	TX	Bexar	10	26	34	29				24		18		H	
Army	Camp Williams	25000	UT	Utah			48		17			14				M	
Army	Fort Belvoir	8656	VA	Fairfax	14	6	9	11		42		4		31		H	
Army	Fort Story	1451	VA	Virginia Beach		13	37			12				24		M	
MC	Camp Pendleton	186471	CA	San Diego	2	39	31			28				1		H	
MC	Quantico MC Base	60483	VA	Prince William		32			36	7				204		L	
Navy	Concord Ocean Terminal	7600	CA	Contra Costa	16	22	29	24				11	2	23	42	H	
Navy	Seal Beach NWS - Concord	5200	CA	Contra Costa	16	22	16	24				11	2	23	42	H	
Navy	Stockton Nvl Communication	2787	CA	San Joaquin	34					35			2	10		H	
Navy	Port Hueneke CBC	1820	CA	Ventura	24							30	2			M	
Navy	Point Mugu NWS	4490	CA	Ventura	24							30	2			M	
Navy	Seal Beach NWS	16823	CA	Orange	4	3	2	6				14	1	14		H	
Navy	Seal Beach NWS - Fallbrook	8851	CA	San Diego	2	39				28			2	1		H	
Navy	Miramar MC Air Station	23606	CA	San Diego	2	39	12			28			2			H	
Navy	San Diego Nvl Submarine Base	314	CA	San Diego	2	39	13			28			1	1		H	
Navy	North Island NAS	46575	CA	San Diego	2	39	13			28			2	1		H	
Navy	San Diego Nvl Station	1518	CA	San Diego	2	39	14			28			1	1		H	
Navy	Coronado Nvl Amphibious Base	1065	CA	San Diego	2	39	14			28			2	1		H	
Navy	North Isl NAS - Imp'l Beach	1190	CA	San Diego	2	39	15			28			1	1		H	
Navy	Anacostia Nvl Station (NDW)	292	DC	Washington	35	1	4	1			32	8			167	L	
Navy	Nvl Research Lab. Washington	946	DC	Washington	35	1	6	1			32	8			167	L	
Navy	Great Lakes Nvl Trng Cntr	1030	IL	Lake	32	21	30	26			16	2	2		169	L	
Navy	Naval Academy	2001	MD	Anne Arundel	39	24		30				17	2		148	L	
Navy	Naval SWC- Indian Hd	3410	MD	Charles			56			18			3			M	
Navy	Earle NWS - Waterfront	1100	NJ	Monmouth	31	20	1	22				10	1			M	
Navy	Earle NWS - Mainside	10000	NJ	Monmouth	31	20		22				10	2			M	
Navy	Lakehurst NASC	7431	NJ	Ocean	37	35		37				38	2			M	

Dept.	Property	Area (acres)	ST	Resident County	Community Size				Economic Strength				Proximity UA	DOD			At Risk Level	
					Population		City (20mi) 1990	County %	UrDvlp	Population Growth %		Earn. Per Capita		% of Templ	Change 85-97	Military Employment		
					Total 1997	Dnsity 1997				90-97	85-90	Growth% 90-97						\$ 1997
Navy	Defense Supply Cntr - Columbus	551	OH	Franklin	13	10	40	14				29		3		162	M	
Navy	Willow Grove NAS	1100	PA	Montgomery	25	16	7	10				3		42		159	M	
Navy	Newport Nvl Training Cntr	1214	RI	Newport	28	28	52					24				157	L	
Navy	Memphis NAS	3450	TN	Shelby	17	23	53	19				17			7	139	M	
Navy	Camp Peary	9274	VA	York		38			9						181		L	
Navy	Yorktown NWS	13248	VA	York		38			9						181		L	
Navy	Yorktown NWS - Cheatham	1579	VA	York		38			9						181		L	
Navy	Little Cr. Nvl Amphibious Base	2120	VA	Virginia Beach		13	28			12			2	179	24		M	
Navy	Oceana NAS	24534	VA	Virginia Beach		13	36			12			1	179	24		M	
Navy	Dam Neck Training Cntr	1303	VA	Virginia Beach		13	43			12			1	179	24		M	
Navy	Oceana NAS - Fentress	2406	VA	Chesapeake		43	36			12	23		2		203		L	
Navy	Bangor Nvl Submarine Base	6527	WA	Kitsap		40	50			24	32		2	189	213	147	L	
Navy	Puget Sound Nvl Shipyard	1577	WA	Kitsap		40	45			24	32		1	189	213	147	L	

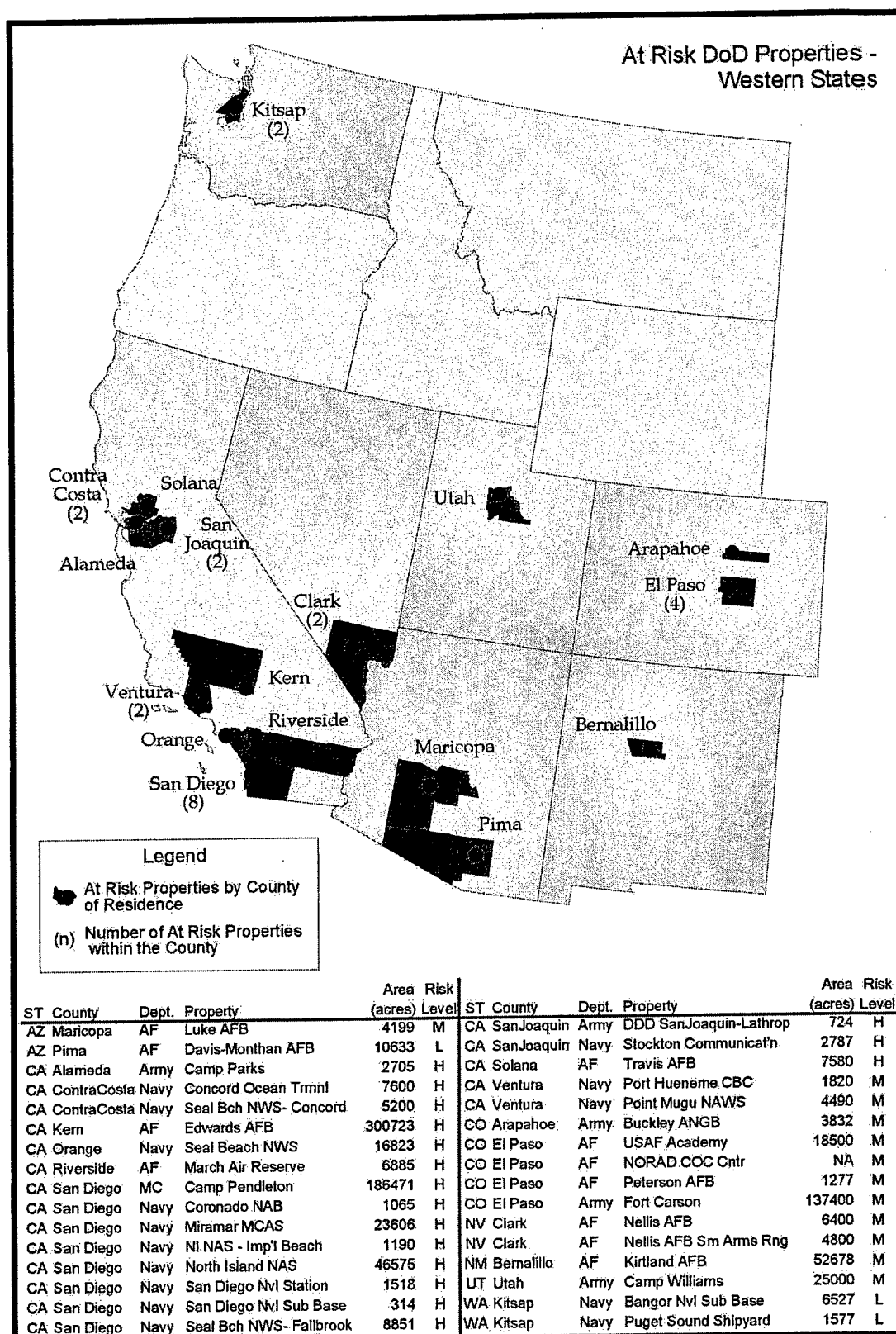


Figure 7. Location of at risk properties—Western States.

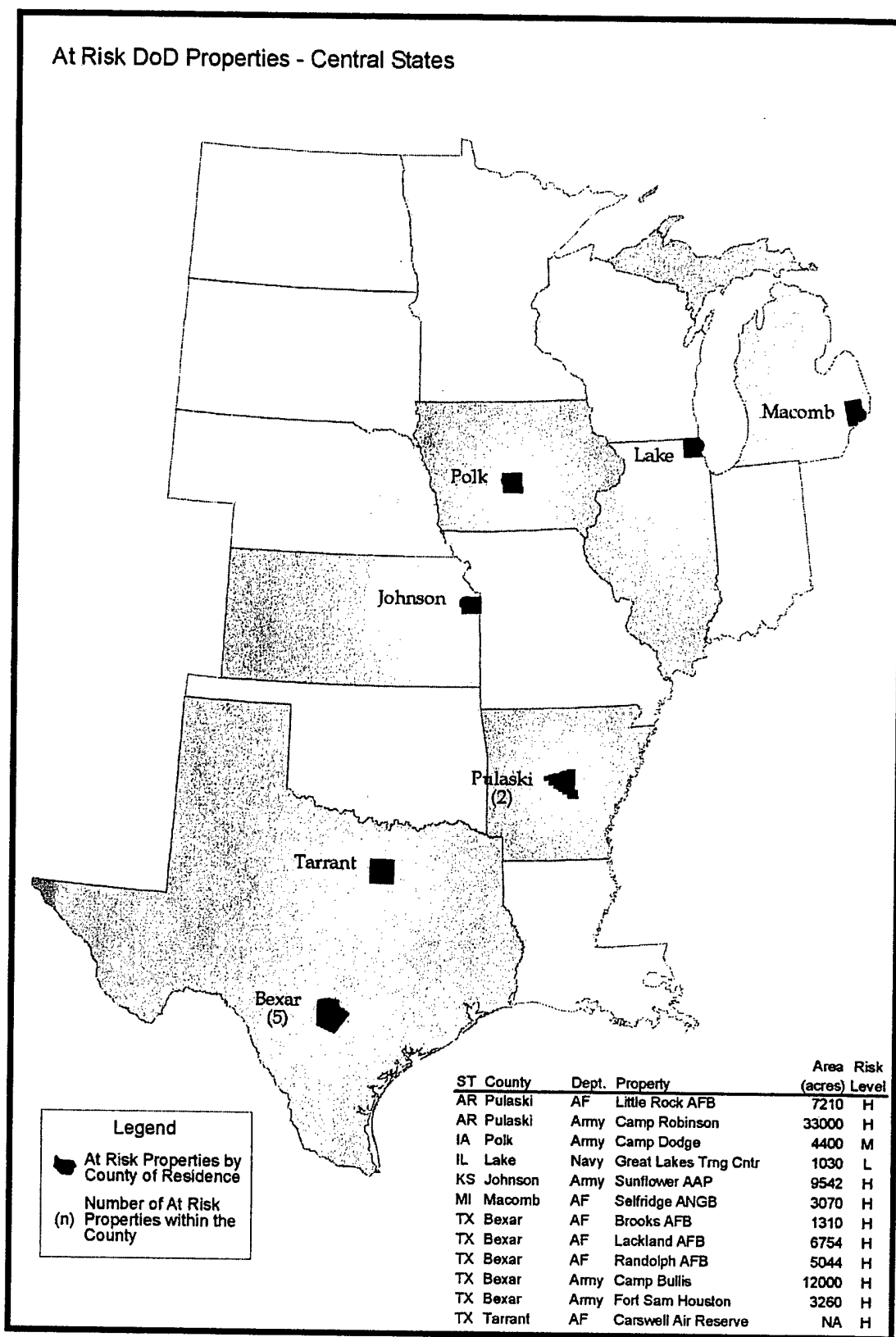


Figure 8. Location of at risk properties—Central States.

At Risk DoD Properties - Eastern States

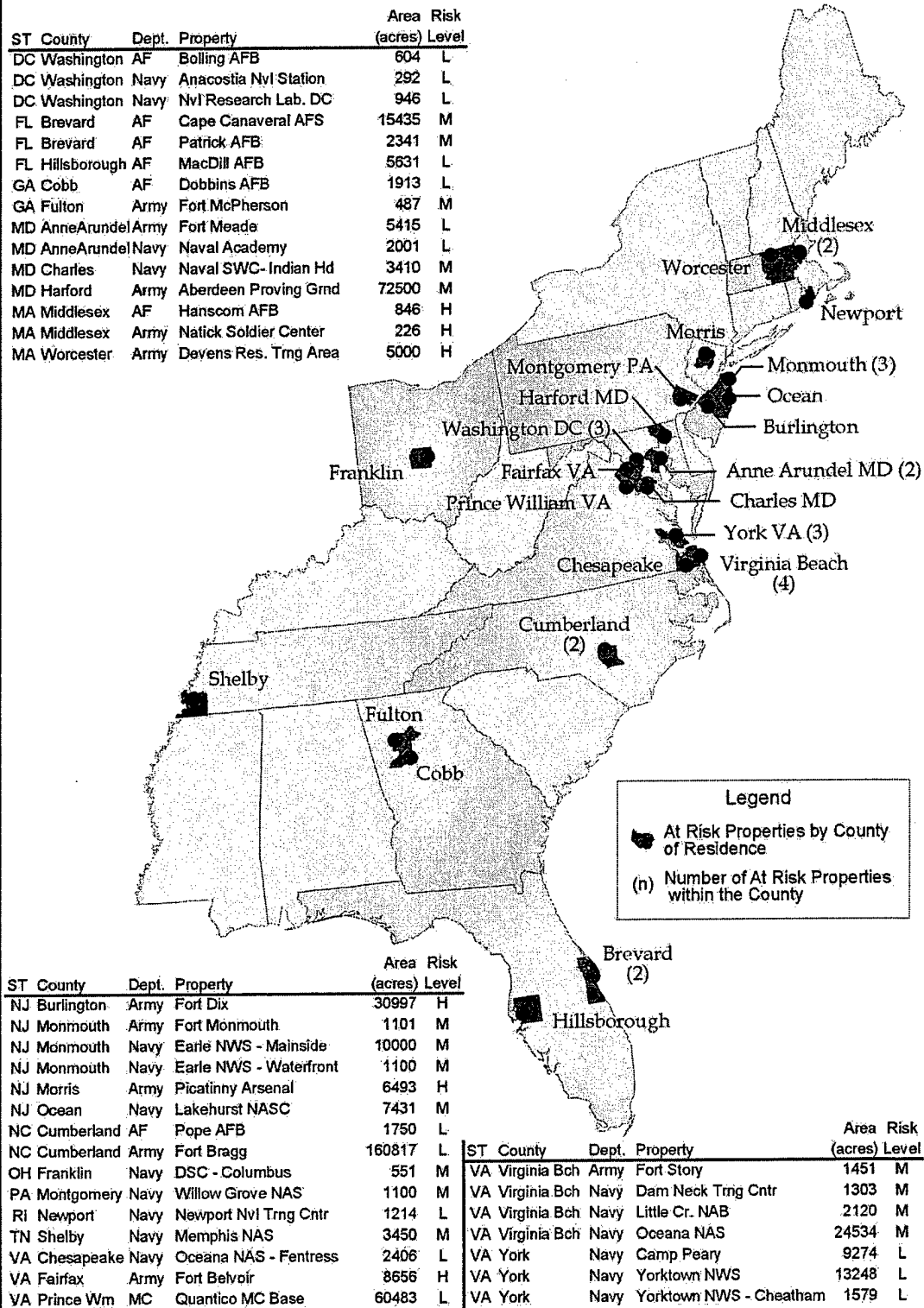


Figure 9. Location of at risk properties—Eastern States.

The DOD factors are only incorporated for determination of risk level. These factors were all ranked in ascending order by factor value, reflecting that risk is associated with low values rather than high values. For example, the lowest ratio of military employment to total employment would put a property at the highest risk relative to other properties (factor values are given in Appendix A). While all the DOD factors for this study scale were county level data, the risk breakpoint was not always 42. There were many duplicate values for the military employment per DOD area factor, particularly at a high risk level (there were 14 properties from 12 counties that had military employment of 0 percent). The breakpoint for this factor was 33. Risk level assessment resulted in a high level of risk when rankings were high (top 42 or 33) and a low level of risk when rankings were low (rankings of 138 through 214 or 136 through 169) rankings.

Areas with significant proportions of high risk installations were California (17), Texas (6), and Massachusetts (3). By comparison, areas with significant proportions of relatively lesser risk installations were Washington, DC (3) and North Carolina (2). However, these risk level assignments may be inappropriate due to the data available for DOD risk indicators. For example, the high risk levels for California properties are the result of significant reductions in military employment between 1985 and 1997. Because California experienced numerous base closures in this period, the changes in military employment are more likely related to these closures than to reductions at the properties that have remained continuously operational. Specific information about each property would improve DOD factor development.

Comparison of Study Results

Table 5 presents a side-by-side list of the results of the State level and county of residence level risk assessments. Two comparative statistics are included, the percent of risk over- or understated at the State level as compared to the county of residence level.

The scale of the examination clearly affects the results. For 25 of the 46 States, risk assessment was different for the State versus county of residence scale. It seems obvious that the indicator data employed for the county of residence scale would provide a more meaningful measure of the communities that are likely to have interactions and conflicts with the military properties. This coincides with studies evaluating the economic impact of base closures, which found that effects were highly localized (Dardia et al. 1996).

Table 5. State and county of residence level risk assessments.

State	DOD Prpty Cnt	Results by Study Level				Comparison	
		State Summary		County of Residence		% Risk Overstated at ST Level	% Risk Understated at ST Level
		At Risk (Y/N)	At Risk Level	At Risk (prpty cnt)	At Risk Level		
AL	7	N		0		NA	0.00
AZ	13	Y	H	2	1 M; 1 L	84.62	NA
AR	4	N		2	2 H	NA	50.00
CA	36	Y	M	19	17 H; 2 M	47.22	NA
CO	8	N		5	5 M	NA	62.50
CT	1	Y	L	0		100.00	NA
DE	1	N		0		NA	0.00
DC	3	Y	M	3	3 L	0.00	NA
FL	24	Y	L	3	2 M; 1 L	87.50	NA
GA	11	N		2	1 M; 1 L	NA	18.18
ID	5	N		0		NA	0.00
IL	4	N		1	1 L	NA	25.00
IN	5	N		0		NA	0.00
IA	2	N		1	1 M	NA	50.00
KS	6	N		1	1 H	NA	16.67
KY	3	N		0		NA	0.00
LA	4	N		0		NA	0.00
ME	2	N		0		NA	0.00
MD	10	Y	L	4	2 M; 2 L	60.00	NA
MA	5	Y	L	3	3 H	40.00	NA
MI	2	N		1	1 H	NA	50.00
MS	5	N		0		NA	0.00
MO	3	N		0		NA	0.00
MT	2	N		0		NA	0.00
NE	2	N		0		NA	0.00
NV	10	N		2	2 M	NA	20.00
NJ	7	Y	M	6	2 H; 4 M	14.29	NA
NM	6	N		1	1 M	NA	16.67
NY	5	N		0		NA	0.00
NC	11	N		2	2 M	NA	18.18
ND	2	N		0		NA	0.00
OH	3	N		1	1 M	NA	33.33
OK	5	N		0		NA	0.00
OR	4	N		0		NA	0.00
PA	6	N		1	1 M	NA	16.67
RI	1	N		1	1 L	NA	100.00
SC	7	N		0		NA	0.00
SD	1	N		0		NA	0.00
TN	2	N		1	1 M	NA	50.00
TX	18	N		6	6 H	NA	33.33
UT	9	N		1	1 M	NA	11.11
VT	2	N		0		NA	0.00
VA	22	N		10	1 H; 4 M; 5 L	NA	45.45
WA	9	N		2	2 L	NA	22.22
WI	2	N		0		NA	0.00
WY	1	N		0		NA	0.00
Prptys:	301	99		81			
% of Properties:		32.9		26.9			

Area of Influence Example Study

The original risk assumption was guided by a hypothesized risk continuum represented by five military installations rated from high to low: Camp Pendleton, Fort Carson, Eglin AFB, Fort Benning, and Fort Riley. The county of residence study found Camp Pendleton and Fort Carson to be at risk, but did not identify the other three. Fort Benning was found to be at risk for economic strength and proximity, Eglin AFB for proximity alone, and of the five, Fort Riley was found to be at relatively least risk. This ordering of "at risk" stressors may indicate that the continuum should be modified so that Fort Benning represents medium risk.

Regardless of any ordering change, the low rankings for community size factors for Fort Benning and Eglin AFB contradict expectations. This is especially true at Fort Benning, where recent trends of development pressures from neighboring Columbus, Georgia indicate that Fort Benning may already be at risk. For example, Columbus's Military Affairs committee initiated a Land Exchange Program more than 10 years ago with the objective of pursuing land exchanges with Fort Benning as a way to address the community's perceived shortage of land for industrial development (Wilkins 1999).

To investigate whether Fort Benning was incorrectly assessed because of data mismatches or resolution problems, this study added a third level of assessment, a local area of influence investigation. This is a detailed inspection of both changes to the demographic and economic conditions and the physical conditions around the installation, actually broader than the county of residence level as it considers all neighboring counties and additional time-series analyses. Because of the additional complexity, this level is an illustration limited to one property. The emphasis is on actual indicator data rather than any ranked factors.

Figure 10 shows the location of Fort Benning. The installation occupies land in three counties (Chattahoochee and Muscogee in Georgia, and Russell in Alabama). Fort Benning's cantonment is located in Chattahoochee county, and all the military earnings and employment data are reported there. With the county of residence study limited to one home county, Chattahoochee data indicated that Fort Benning was the significant economic driver and faced little risk from private sector growth. Eighty-eight percent of the county employment for 1997 was attributable to the military. County population was low (16,589 in 1997) and had declined (from 19,408 in 1985), while per capita earnings were low (\$19,068 in 1997), but had increased rapidly (47 percent growth rate between 1990 and 1997).

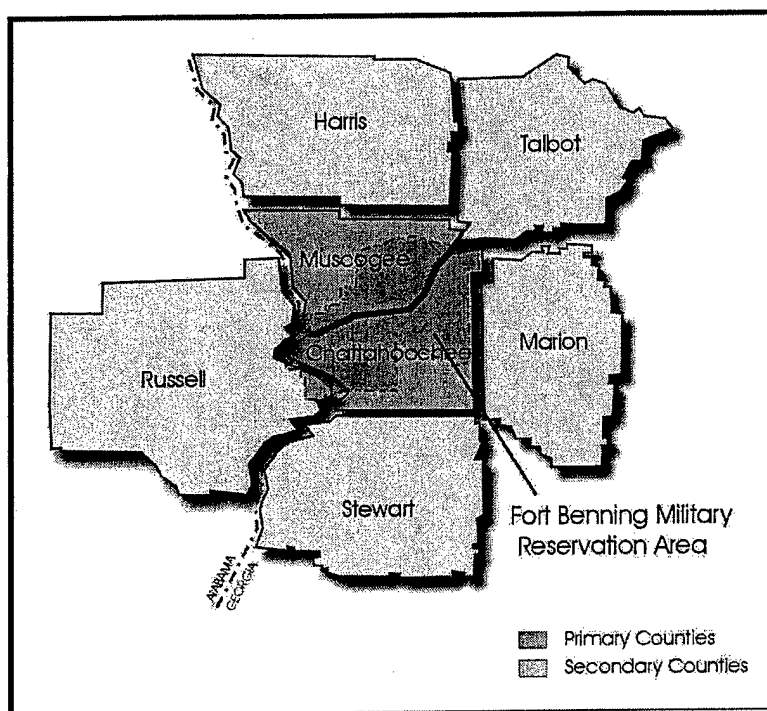


Figure 10. Fort Benning and adjacent counties.

A review of data for surrounding counties indicated that an area-wide examination could significantly change the risk assessment for Fort Benning. Columbus (Fort Benning's neighboring community to the north) is located in Muscogee County. Here, even though Fort Benning is a significant land owner, the data show that population is much higher than Chattahoochee County (182,830 in 1997), while only 3.9 percent of the employment was attributable to the military. To balance the inaccurate separation by county of the private and military sectors, the area of influence investigation categorized Chattahoochee and Muscogee both as the primary counties with significant interactions with Fort Benning. In addition, it categorized five other neighboring counties as having lesser, but still important, interactions indicating broader or longer term potential impacts for Fort Benning.

The following graphs and charts highlight characteristics that give a more precise representation of risk from community-installation conflict at Fort Benning. Figure 11 shows population statistics for the period 1970 to 1997 according to the primary and secondary county categorization. As described earlier, Chattahoochee County population is low, because it largely consists of the residents of Fort Benning. With the primary county categorization, the population associated with Fort Benning increases dramatically (199,419 for 1997). This change in assessment approach changes Fort Benning's ranking in the 1997 population factor for community size from 203 to 83.

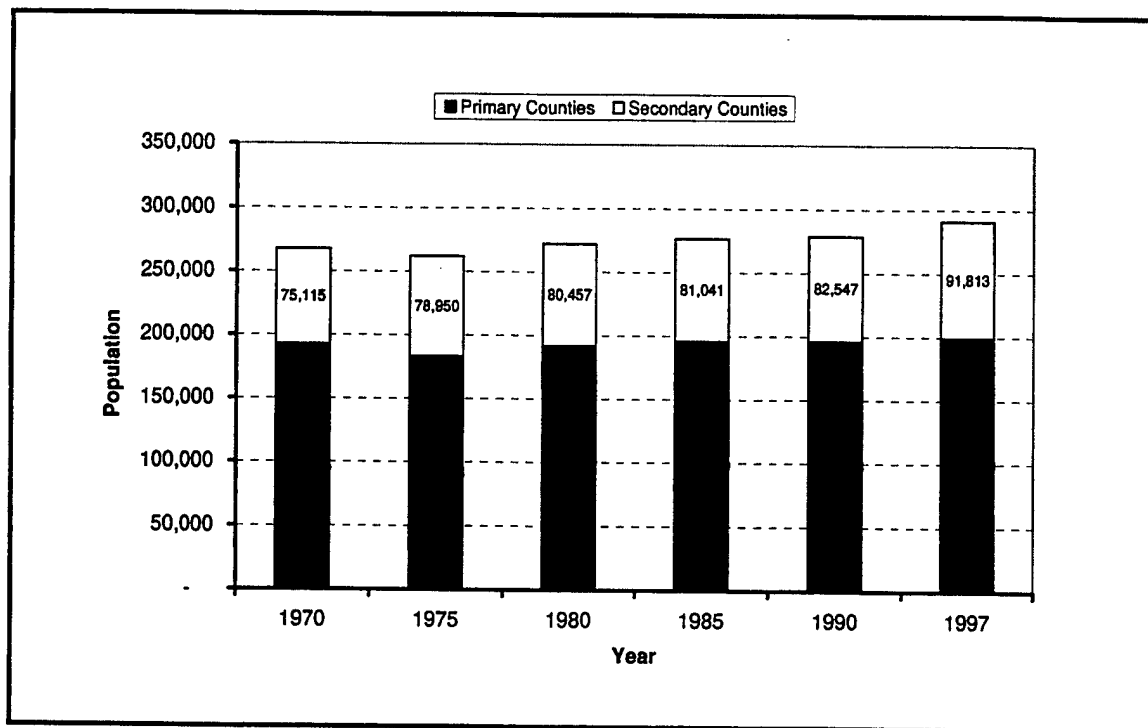


Figure 11. Fort Benning area population, 1970-1997.

Figures 12 and 13 show population and per capita earnings growth for the same time span, provide a basis to compare the primary and secondary county statistics to the Georgia State totals. Population growth in the Fort Benning area had been well below the State situation until the 1990s. Growth in the primary counties remains low; the assessment approach change has no effect on Fort Benning's ranking with respect to population growth. Growth in the secondary counties appears to be approaching the Georgia State population growth rate; these counties are still small in total population so their high growth rates should not yet be a source of risk.

Per capita earnings growth in the Fort Benning area has consistently matched or exceeded the State situation. Growth for both primary counties is similarly high, so the assessment approach change had no effect on Fort Benning's ranking, which was already high (8). Not illustrated here is the effect of the primary county categorization on 1997 per capita earnings itself. Per capita earnings was \$19,068 for Chattahoochee County and \$22,064 for Muscogee. An appropriate combined county per capita earnings figure of \$21,738 was calculated as a weighted average considering total employment for each county. This change in assessment approach changes Fort Benning's ranking in the 1997 per capita earnings factor for economic strength from 148 to 88.

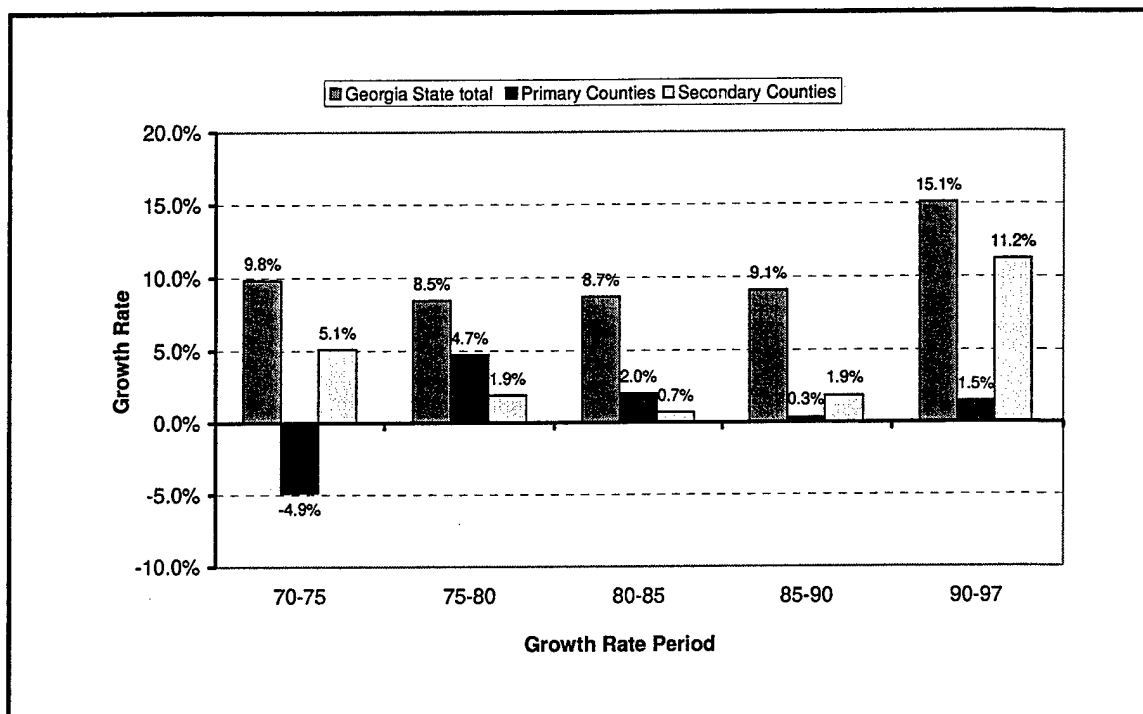


Figure 12. Fort Benning area population growth, 1970–1997.

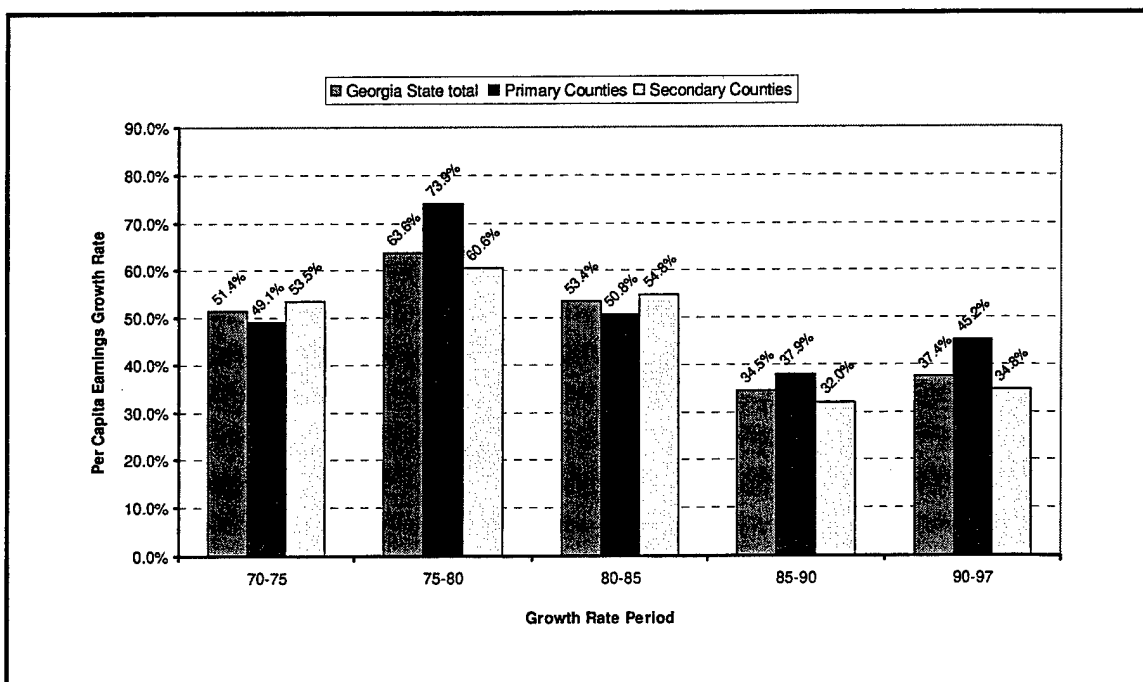


Figure 13. Fort Benning area per capita earnings growth, 1970–1997.

The information on area changes in population versus earnings gives offsetting indications of the potential for community-installation conflict. However, changes in the physical environment show recent, significant physical development that points to increasing potential for risk. Figure 14 shows urban development in the Columbus, Georgia-Phenix City, AL urbanized area.

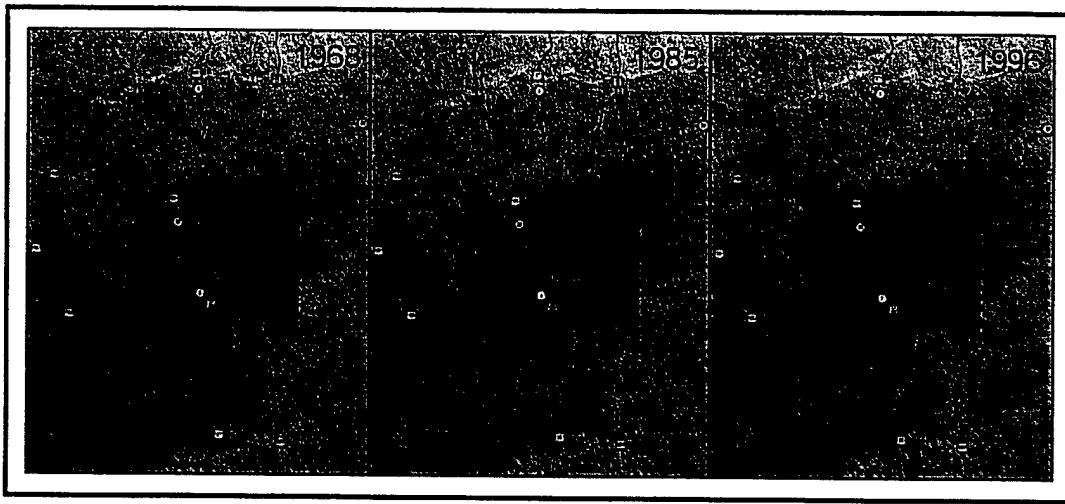


Figure 14. Fort Benning area urban growth, 1968–1996.

Urban extents for 1968 and 1985 were taken from historic USGS 7.5 minute series topographic maps. The 1996 extents was taken from the urbanized area boundaries data and matched against recent USGS 30m land cover data. The minor changes in developed areas between 1968 and 1985 coincide with the declining and low population growth trends. The major changes between 1985 and 1996 show physical growth that is substantially greater than population growth, indicating sprawl development or investment in infrastructure and commercial/industrial facilities that will provide private sector employment opportunities and support future population growth.

The final characteristic examined is the DOD contribution to the local area. Figure 15 shows employment trends and the relationship between military and other employment. The combined information for the primary counties presents a less optimistic assessment of Fort Benning's contribution to the local economy. While total employment has been growing steadily (represented by the line), military employment has been declining (ratio represented by bars). The 10 percent military employment ratio may still place Fort Benning as one of the largest area employers, but the downward trend can only be expected to continue.

Fort Benning proves to be a good illustration of how choice of scale may change the assessment of risk and how important detailed, local area inspection is in identifying risk from potential community conflicts.

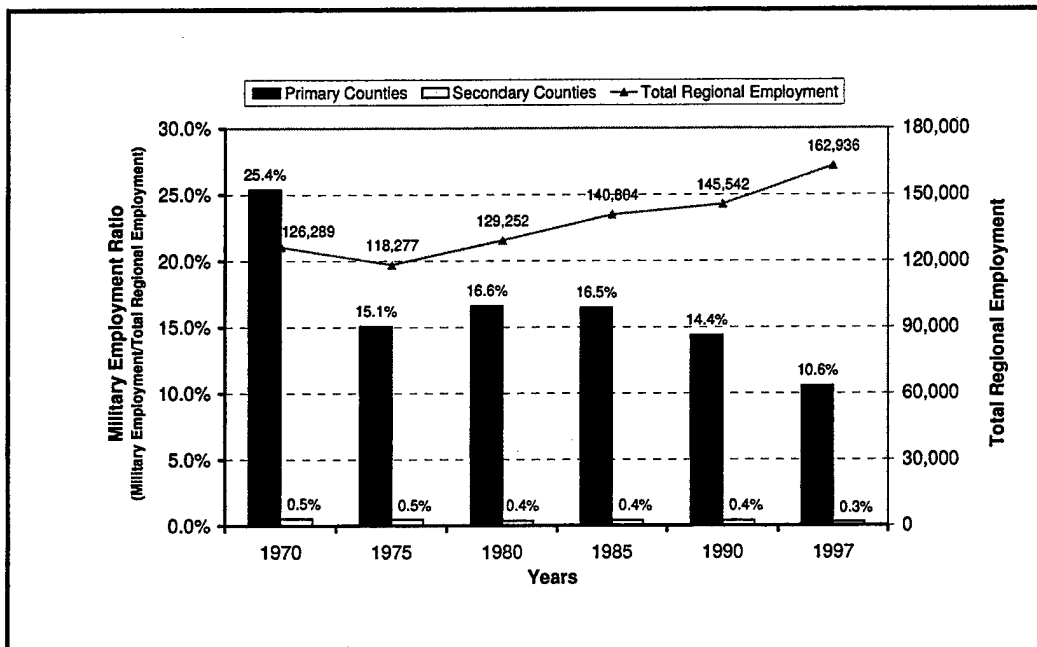


Figure 15. Fort Benning area military employment versus region employment, 1970–1997.

Low Density Urban Development

Outside the installation boundary, low density community growth patterns are beginning to dominate the landscape. Some facts related to the sprawling changes:

- From 1970 to 1990, 19 million acres of once-rural land in the United States became urban (Sorensen, Greene, and Russ 1997).
- In 1920, 50 percent of the U.S. population lived in cities.
- In 1960, 70 percent of the U.S. population lived in cities.
- Today the United States is about 80 percent urban.
- From 1970 to 1990:
 - the density of urban population in the United States decreased by 23 percent (Brown et al. 1998)
 - more than 50 percent of the population now live in suburbs.
- From 1969 to 1989:
 - the population of the United States increased by 22.5 percent
 - the number of miles driven by that population increased by 98.4 percent (FHA 1990).
- From 1983 to 1987:
 - the population of the United States increased by 9.2 million people
 - the number of cars and trucks increased by 20.1 million (FHA 1996).
- Between 1970 and 1990:
 - New York's population grew 5 percent and land area grew 61 percent

- Chicago's population grew 4 percent and land area grew 46 percent
- Cleveland's population *declined* 11 percent, but land area still grew 33 percent.

What does this mean? For the individual it can mean increased travel times, congestion, and unproductive hours from busy schedules. For a community, it means that competition for land has intensified and development has spread to once isolated areas. And for the U.S. military establishment, it means more complaints from the installations' new neighbors about the noise, dust, and traffic generated by military operations. It also means an increased opposition to the opening of new areas of the installation to training exercises and increased pressure to maintain natural habitat for threatened and endangered species due to habitat loss outside the installation.

The location of military installations provides clues to the potential extent of the conflict between military installations and sprawling growth. Figure 16 shows the distribution of approximately 500 military installations in the continental United States. Note the clustering of installations in the southern half of the United States, specifically the Atlantic and Pacific coastal regions (26 percent and 20 percent of the total, respectively). These areas are currently pressured by concentrated urban growth.

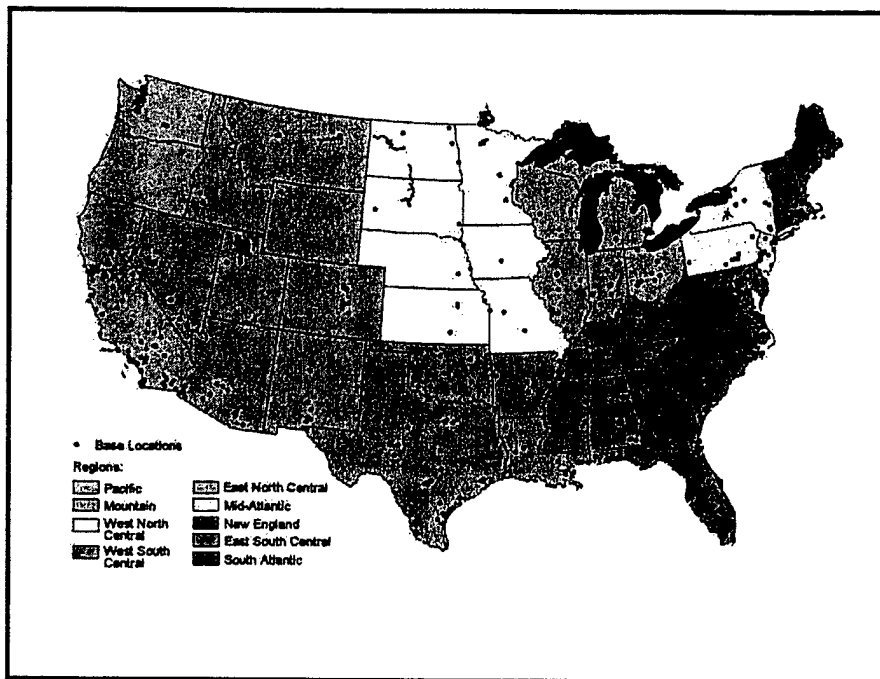


Figure 16. The spatial distribution of Department of Defense installations within the 48 contiguous states.

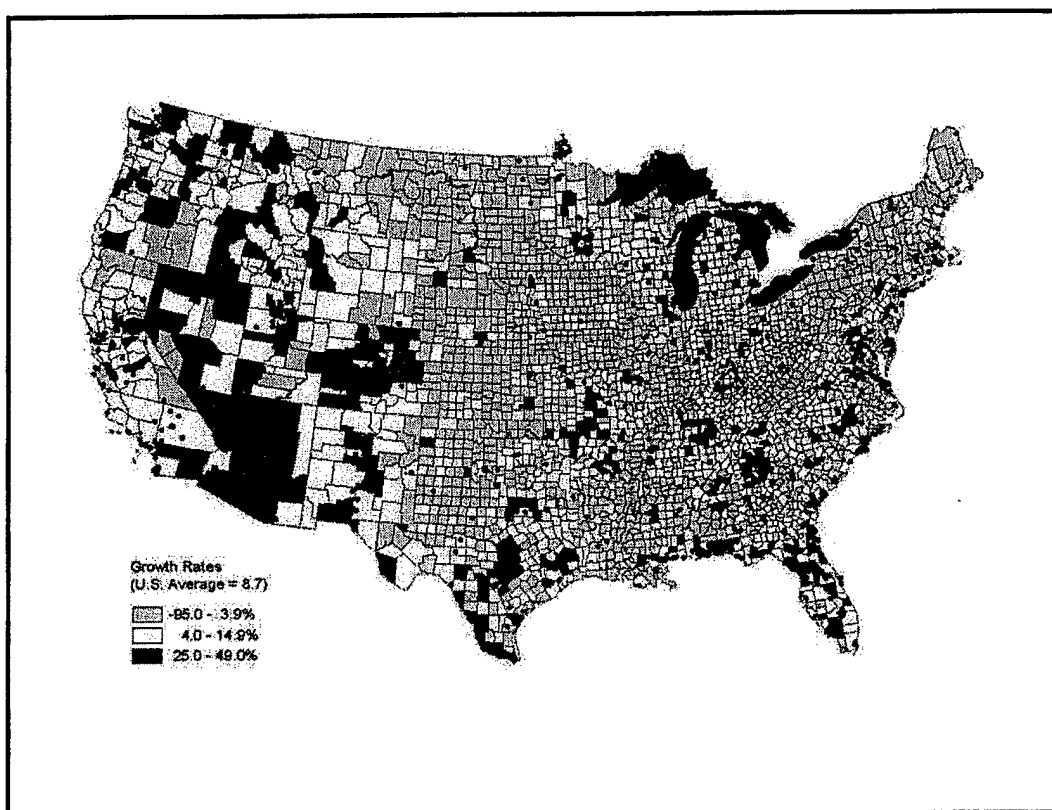


Figure 17. U.S. population growth rates by county with military installation locations (black dots), 1990 to 1997.

When DOD military installation locations are compared with census data that identify county level growth patterns, we find that the fastest growing counties in the United States frequently contain military installations. Figure 17 groups the counties in the continental United States into three growth classes (based on comparisons of 1990 and 1997 census data). The fastest growing class reflects an increase in county population that exceeds 15 percent (darker gray). Altogether, 18 percent (82/448) of the installations examined are located in part or in total within this group of rapidly growing counties.

At-Risk Facilities

As defense weapons, strategies, and tactics evolve, military land managers are being forced to re-evaluate the land use requirements needed to support the military mission "inside the fence line." Each new generation of defense weapon systems and tactics has required increasing land areas for effective and realistic training (Kingston 1999). Yet, due to base closures, and difficulties in acquiring new lands for military installations, providing adequate lands for the sustainment of defense capabilities has become a challenge (Goran et al. 2000). Compounding the issue are increasing land use constraints due to resource protection

issues and civil community complaints concerning noise and dust. (Such constraints are generated by pressures outside the installation boundary [Stenitz 1997].)

Cautions for Interpretation

Several limitations to the current study should be considered in evaluating its results. They mainly relate to the use of a relative ranking approach and the effect of level of data resolution.

The relative ranking approach was necessary because of the lack of explicit knowledge of at risk standing and the lack of known thresholds for causative factors. That is, we neither know which installations are or are not actually at risk (based on observation), nor how much the neighboring community can grow before it begins to impose constraints on an installation's land use. Given knowledge of either of these, we could solve for the other. The relative ranking approach is a way to begin determining both of these aspects, by encouraging review and discussion.

The selection of a 20th percentile as a cutoff for risk potential was somewhat arbitrary. It is based on the assumption that not all properties are at risk, and the proportion seems reasonable given the number of properties included in the study.

Properties were attributed with indicator data that were aggregated in ways that aided in collecting and sharing data. These aggregations (State or county) enforce certain equality assumptions about the data; for example, the assumption that per capita earnings are uniform throughout the area of aggregation. The unequal distribution of resources within the aggregation area may misstate the situation for a particular military property, as shown by the changes in at risk determinations between the State and county level of study.

The physical boundaries imposed by these data aggregation methods have other effects. These boundaries are artificial in that they do not represent limits to the exchange of resources and conflicts. Because of data matching and analysis complexities, this study was limited to associating military properties with only one State or county. However, an installation may be at risk from population growth outside its State or county of residence because of actual proximity. A more accurate assessment would require a more spatially relevant method of collecting and attributing data.

4 Summary and Recommendations

Summary

This research has identified and evaluated indicators of risks to military lands due to exogenous effects of local area growth. A variety of demographic, economic, and land use data were gathered and examined as potential risk indicators. Traditional data analysis and spatial modeling techniques were incorporated within a geographic information systems (GIS) framework. Several data summarization levels and spatial scales were evaluated to determine if different risk assessments might be derived, and to suggest monitoring approaches for continuing assessment.

This study performed a preliminary investigation into developing a rating system of DOD properties at risk from community-military conflict. Because of a lack of any demonstrable risk cases or measures to serve as a calibration mechanism, the indices were derived using relative rankings. Comparisons were made among the installation properties studied, so that some properties are identified as more at risk than others, based on how a particular factor compares to others. The relative ranking approach was necessary because of the lack of empirical data documenting or identifying known "at risk" installations and the lack of knowledge about possible causative factors. The level of aggregation of information required by lack of detailed data also highlights the difficulty of making a comprehensive evaluation. The case study of Fort Benning illustrates how scale may change the assessment of risk and accentuates the importance of detailed, local area inspection for identifying potential community conflicts.

As competition for land has intensified, so has the disagreement over how to balance land-use economics and the conservation of natural resources. To date, the controversy has focused on private property rights and the appropriate role of government in managing lands. The lack of a genuine dialogue between advocates of public and private interests has led to a paralysis of effective decision-making at every level of government.

The California Legislation enacted begins to address this paralysis. The California Defense Retention and Conversion Council Act establishes a council within State government comprised of several cabinet agencies. The council also

includes representatives of local government, business, labor—and most importantly—military representatives. The purpose of the council is to study encroachment on military lands in California, and to provide advocacy within State government for military operations, particularly as they are impacted by State regulatory action. This effort to facilitate community-installation communication is supported by two Executive orders, EO12512 and EO12371, which direct installation master planning efforts to review and coordinate planning goals and objectives with the communities surrounding DOD installations in order to enhance the installations value to the public.

These new legislative efforts and executive orders understand that military installations represent unique and difficult to replace assets. The encroachment of rapid urban growth is beginning to compromise the fundamental mission of some of our military installations. Possible strategies for coping with this problem include:

- identifying and prioritizing installations at risk
- developing and nurturing installation and community dialogues (e.g., the California Defense Retention and Conversion Council Act)
- developing a comprehensive understanding of the dynamics of urban change outside the installations (with the use of growth analysis models and alternative scenarios)
- understanding the future environmental impacts associated with change scenarios
- the development of stock aggregation and spatial evaluation techniques to assess the installation and community land-use scenarios
- connecting the installation planning with local community planning efforts.

Such complex problems and solutions are not easily defined. As is often the case with planning-related problems, the first steps towards achieving a solution involves establishing a basic understanding of the problem. In this case, the realization that military installations are being impacted by urban expansion may help engender programs geared to understanding urban and suburban growth dynamics in relation to military lands.

Recommendations

Based on the results of this study to date, the following further study is recommended:

1. Analysis should be conducted at the installation level. Installation level analysis would require collection of installation specific information regarding employ-

ment, spending, land use, activities with exogenous impacts on the community, and complaint/conflict data.

2. To facilitate analysis at this level and help ensure consistent evaluation, a decision-support tool should be developed that can be used to monitor the situation at the National scale.
3. Further study should also consider exogenous forces potentially affecting installation mission accomplishment. It may be important to consider how land use on installations may affect community-installation conflict. An effective approach to avoiding conflict needs to consider how changes in either environment affect the other.

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Appendix A: Study Properties and Demographic Data

Table A1. Selected list of Internet references for DOD property research

Location	Description
http://www.af.mil/sites/	Air Force Site Links
http://www.afbca.hq.af.mil/ols/	Air Force Base Conversion Agency/Information on Air Force BRAC Bases
http://ww2.afreserve.com/locations/base_inf.htm	Air Force Reserve Locations
http://www.army.mil/public/installations.htm	Army Site Links
http://www.ausa.org/armyzine/greenposts.html	Army Magazine Green Book Post & Installations
http://www.osc.army.mil/home/elements.htm	Army Operations Support Command Installations
http://www.ncts.navy.mil/nol/	Navy Site Links
http://www.defenselink.mil/pubs/almanac/index.html	Defense Almanac
http://www.defenselink.mil/issues/brac.html	DefenseLink Base Closure Information
http://www.defenselink.mil/pubs/installations/	DefenseLink List of Military Installations (FY96)
http://www.defenselink.mil/specials/outreachpublic/map.html	DefenseLink Military State Facts and Figures
http://www.cr.nps.gov/nagpra/NACD/namap-5.htm	Military Bases in the Continental US (1993)
http://www.cedar.ca.gov/military/current_reuse/currupdt.html	California Military Base Closures Current Status of Reuse Efforts

Table A2. Description of study properties.

ST	Service Branch	Property	Area (acres)	Cat.	Resident Cnty	ST	Service Branch	Property	Area (acres)	Cat.	Resident Cnty
AL	AF	Maxwell Air Force Base	4104	1	Montgomery	CA	MC	Barstow MC Logistics Base	5704	1	San Bernardino
	Army	Anniston Army Depot	15279	2	Calhoun		MC	Camp Pendleton MC Base	186471	1	San Diego
	Army	Fort Rucker	63232	1	Dale		MC	Miramar MC Air Station	23606	1	San Diego
	Army	Redstone Arsenal	37910	1	Madison		MC	Twentynine Palms MC Combat Center	603617	1	San Bernardino
	Navy	WFNAS - OLF Barin	650	0	Baldwin		Navy	China Lake Nvl Air Weapons Sin	1102344	3	Kern
	Navy	WFNAS - OLF Silverhill	NA	0	Baldwin		Navy	China Lake Nvl Weapons Center	NA	3	San Bernardino
	Navy	WFNAS - OLF Summerdale	NA	0	Baldwin		Navy	Chocolate Mountains Range	NA	-1	Imperial
AR	AF	Little Rock Air Force Base	7210	1	Pulaski		Navy	Concord Military Ocean Terminal	7600	-1	Contra Costa
	Army	Pine Bluff Arsenal	14500	2	Jefferson		Navy	Coronado Naval Amphibious Base	1065	2	San Diego
	ARMG	Camp Joseph T Robinson	33000	-1	Pulaski		Navy	El Centro Bombing Range	56000	-1	Imperial
	ARMG	Fort Chaffee	66000	-1	Sebastian		Navy	El Centro Naval Air Facility	3000	2	Imperial
AZ	AF	Davis-Monthan Air Force Base	10633	1	Pima		Navy	Lemoore Naval Air Station	39173	1	Kings/Fresno
	AF	Luke AFB - Barry M. Goldwater Range	2684423	0	Yuma		Navy	NI NAS - NALF San Clemente Isl	NA	0	Los Angeles
	AF	Luke Air Force Base	4199	1	Maricopa		Navy	NI NAS - OLF Imperial Beach	1190	0	San Diego
	AF	Luke Air Force Base - ALF No.1	1105	0	Maricopa		Navy	North Island Naval Air Station (NI NAS)	48575	1	San Diego
	Army	Fort Huachuca	73272	1	Cochise		Navy	Point Mugu Naval Air Weapons Station	4490	1	Ventura
	Army	Ft Huachuca - Dry Lake EPG	30740	0	Cochise		Navy	Point Mugu NAWS - San Nicolas Island	13370	0	Ventura
	Army	Yuma Proving Ground	1009376	2	Yuma		Navy	Port Hueneme Construction Battalion Center	1820	3	Ventura
	ARMG	Buckeye Nat'l Guard Target Range	NA	-1	Maricopa		Navy	San Diego Naval Station	1518	1	San Diego
	ARMG	Camp Florence	25752	-1	Pinal		Navy	San Diego Naval Submarine Base	314	1	San Diego
	ARMG	Camp Navaho	28400	-1	Cocconino		Navy	Seal Beach Naval Weapons Station	16823	3	Orange
	ARMG	Ritterhouse Training Area	480	-1	Pinal		Navy	Seal Beach NWS - Concord	5200	0	Contra Costa
	MC	Yuma MC Air Station	462571	1	Yuma		Navy	Seal Beach NWS - Fallbrook	8851	0	San Diego
	Navy	Naval Observatory - Flagstaff	NA	-1	Cocconino		Navy	Stockton Naval Communications Station	2787	3	San Joaquin
CA	AF	Beale Air Force Base	22944	1	Yuba	CO	AF	AF Academy - Farish Recreation Area	652	0	El Paso
	AF	Edwards Air Force Base	300723	1	Kern		AF	Air Force Academy	18500	1	El Paso
	AF	March Air Reserve Base	6885	1	Riverside		AF	Buckley Air Nat'l Guard Base	3832	1	Arapahoe
	AF	Travis Air Force Base	7580	1	Solana		AF	Cheyenne Mountain Air Station (NORAD)	519	2	El Paso
	AF	Vandenberg Air Force Base	98256	1	Santa Barbara		AF	Peterson Air Force Base	1277	1	El Paso
	Army	DDD San Joaquin - Lathrop	724	2	San Joaquin		Army	Fort Carson	137400	1	El Paso
	Army	Fort Irwin	636214	1	San Bernardino		Army	Fort Carson - Pinon Canyon	235600	0	Las Animas
	Army	Presidio of Monterey	1134	2	Monterey		Army	Pueblo Ordnance Depot	23121	2	Pueblo
	Army	Sierra Army Depot	36000	2	Lassen	CT	Navy	New London Naval Submarine Base	1812	1	New London
	ARMG	Camp Roberts	42784	-1	San Luis Obispo	DC	AF	Bolling Air Force Base	604	1	Washington
	ARRes	Camp Parks	2705	3	Alameda		Navy	Anacostia Naval Station (NDW)	292	3	Washington
	ARRes	Fort Hunter-Liggelt	165500	-1	Monterey		Navy	Naval Research Lab, Washington	946	3	Washington
DE	AF	Dover Air Force Base	3908	1	Kent	ID	AF	Mountain Home Air Force Base	6000	1	Elmore

ST	Service Branch	Property	Area (acres)	Cal.	Resident Cnty	ST	Service Branch	Property	Area (acres)	Cal.	Resident Cnty
FL	AF	Avon Park Range	100929	3	Polk		AF	Saylor Creek Training Range	109000	-1	Owyhee
	AF	Cape Canaveral Air Force Station	15435	2	Brevard		Army	Pershing II Missile Launch Site	NA	-1	Owyhee
	AF	Eglin Air Force Base	463452	1	Okaloosa	IL	AF	Scott Air Force Base	3230	1	St. Clair
	AF	Homestead Air Reserve Base	867	2	Dade		Army	Charles Melvin Price Support Center	686	3	Madison
	AF	MacDill Air Force Base	5631	1	Hillsborough		Army	Rock Island Arsenal	946	1	Rock Island
	AF	Patrick Air Force Base	2341	1	Brevard		Navy	Great Lakes Naval Training Center	1030	2	Lake
	AF	Tyndall Air Force Base	29102	1	Bay	IN	AF	Grissom Air Reserve Base	3181	1	Miami
	Navy	Cory Station Naval Training Center	737	2	Escambia		Army	Indiana Army Ammunition Plant	11347	3	Clark
	Navy	Jacksonville Naval Air Station	3923	1	Duval		Army	Newport Army Ammunition Plant	7098	3	Vermillion
	Navy	Key West Naval Air Station	5293	2	Monroe	ARNG		Camp Atterbury	35000	-1	Bartholomew
	Navy	Kings OLF	NA	-1	Escambia		Navy	Crane Naval Surface Warfare Center	62938	2	Martin
	Navy	Mayport Naval Station	2552	1	Duval	KS	AF	McConnell Air Force Base	3113	1	Sedgwick
	Navy	Panama City Naval Coastal System Station	1116	3	Bay		AF	Smoky Hill ANG Range	34000	-1	Saline
	Navy	Pensacola Naval Air Station	7336	1	Escambia		Army	Fort Leavenworth	5600	1	Leavenworth
	Navy	Pinellas Target Range	5825	-1	Marion		Army	Fort Riley	100671	1	Geary/Riley
	Navy	Rodman Bombing Range	NA	-1	Putnam		Army	Kansas Army Ammunition Plant	13835	3	Labette
	Navy	Slevens Lake Bombing Range	NA	-1	Clay		Army	Sunflower Army Ammunition Plant	9542	3	Johnson
	Navy	WFNAS - OLF Chocataw	NA	0	Santa Rosa	KY	Army	Blue Grass Army Depot	14596	2	Madison
	Navy	WFNAS - OLF Harold	NA	0	Santa Rosa		Army	Fort Campbell	105070	1	Christian
	Navy	WFNAS - OLF Holley	640	0	Santa Rosa		Army	Fort Knox	109210	1	Hardin
	Navy	WFNAS - OLF Santa Rosa	NA	0	Santa Rosa	LA	AF	Barksdale Air Force Base	22361	1	Bossier
	Navy	WFNAS - OLF Saufley	867	0	Escambia		Army	Fort Polk	198894	1	Vernon
	Navy	WFNAS - OLF Spencer	NA	0	Santa Rosa		Army	Louisiana Army Ammunition Plant	14974	3	Webster
	Navy	Whiting Field Naval Air Station (WFNAS)	10761	1	Santa Rosa		Navy	New Orleans Naval Air Station	4919	2	Plaquemines
GA	AF	Dobbins Air Force Base	1913	1	Cobb	MA	AF	Hanscom Air Force Base	846	1	Middlesex
	AF	Moody Air Force Base	6050	1	Lowndes		AF	Olis ARNG/Camp Edwards/MMR	21000	1	Barnstable
	AF	Robins Air Force Base	8722	1	Houston		AF	Westover Air Force Base	2581	1	Hampden
	Army	Fort Benning	184051	1	Chattahoochee		Army	Natick Soldier Center	226	2	Middlesex
	Army	Fort Gordon	55588	1	Richmond		ARRes	Devers Reserve Forces Training Area	5000	2	Worcester
	Army	Fort McPherson	487	2	Fulton	MD	AF	Andrews Air Force Base	7550	1	Prince Georges
	Army	Fort McPherson - Fort Gillem	1424	2	Clayton		Army	Aberdeen Proving Ground	72500	1	Harford
	Army	Fort Stewart	279271	1	Liberty		Army	Fort Detrick	1200	2	Frederick
	MC	Beaufort MCAS - Townsend Range	5183	0	McIntosh		Army	Fort Meade	5415	1	Anne Arundel
	MC	MC Logistics Base Albany	3841	2	Dougherty		Navy	LCNAB - OLF Bloodsworth Island	6013	0	Dorchester
	Navy	Kings Bay Naval Submarine Support	16667	1	Camden		Navy	Naval Academy	2001	2	Anne Arundel
IA	Army	Iowa Army Ammunition Plant	19124	2	Des Moines		Navy	Naval Surface Warfare Cntr, Indian Head	3410	3	Charles
	ARNG	Camp Dodge	4400	-1	Polk		Navy	Patuxent River NAS - Webster Field	1000	0	St Marys
ID	AF	Boise Air Terminal	1994	2	Ada		Navy	Patuxent River Naval Air Station	6950	2	St Marys

ST	Service Branch	Property	Area (acres)	Cat.	Resident Cnty	ST	Service Branch	Property	Area (acres)	Cat.	Resident Cnty
ME	AF	Mountain Home AFB - Small Arms Range	3000	0	Elmore		Navy	Solomon's NRC	NA	-1	Calvert
	Navy	Brunswick Naval Air Station	15910	1	Cumberland	NM	Army	Fort Bliss - McGregor Range	678100	0	Otero
	Navy	Naval Radio Station	596	-1	Washington		Army	White Sands Missile Range	2285327	1	Dona Ana
MI	AF	Selfridge Air National Guard Base	3070	1	Macomb	NV	AF	Nellis AFB - ALF Indian Springs	NA	0	Clark
	ARNG	Camp Grayling	147000	-1	Crawford		AF	Nellis AFB - Small Arms Range	4800	0	Clark
MO	AF	Whiteman Air Force Base	4627	1	Johnson	AF	AF	Nellis Air Force Base	6400	1	Clark
	Army	Fort Leonard Wood	64735	1	Pulaski	AF	AF	Nellis Air Force Range	3100000	-1	Nye
	Army	Lake City Army Ammunition Plant	3950	2	Jackson	Army	Army	Hawthorne Army Depot	147000	3	Mineral
MS	Navy	Alpha Naval Auxiliary Air Station	NA	-1	Noxubee	Navy	Navy	Fallon NAS - Bravo 16 Training Range	17280	0	Churchill
	Navy	Meridian NAS - Joe Williams Field	NA	0	Kemper	Navy	Navy	Fallon NAS - Bravo 17 Training Range	21400	0	Churchill
	Navy	Meridian Naval Air Station	8000	2	Lauderdale	Navy	Navy	Fallon NAS - Bravo 19 Training Range	17330	0	Churchill
	Navy	Multipurpose Target Range	NA	-1	Noxubee	Navy	Navy	Fallon NAS - Bravo 20 Training Range	41007	0	Churchill
	Navy	Naval Construction Battalion Cntr	4771	3	Harrison	Navy	Navy	Fallon Naval Air Station	7872	2	Churchill
MT	AF	Mainstrom Air Force Base	3573	2	Cascade	NY	AF	Hancock Field	371	2	Orondaga
	ARNG	Fort William H Harrison	8500	-1	Lewis & Clark		Army	Fort Drum	107265	1	Jefferson
NC	AF	Cherry Point Dare County Range	10000	-1	Dare		Army	Military Academy at West Point	16000	1	Orange
	AF	Pope Air Force Base	1750	1	Cumberland		Army	Seneca Army Depot Activity	10634	3	Seneca
	AF	Seymour Johnson Air Force Base	3233	1	Wayne	MC	MC	MC Reserve Training Center	NA	-1	Onondaga
	Army	Fort Bragg	160817	1	Cumberland	OH	AF	Wright-Patterson Air Force Base	8145	1	Greene
	Army	Fort Bragg - Camp Mackall Training Area	6542	0	Richmond		Army	Ravenna Army Ammunition Plant	21420	3	Portage
	Army	Military Ocean Terminal Sunny Point	16000	3	Brunswick		Navy	Defense Supply Center Columbus	551	2	Franklin
	MC	Camp Lejeune MC Base	127439	1	Onslow	OK	AF	Altus Air Force Base	6981	1	Jackson
	MC	Cherry Point MC Air Station	13164	1	Craven		AF	Tinker Air Force Base	5000	1	Oklahoma
	MC	Cherry Point MCAS - ALF Bogue	875	0	Carteret		AF	Vance Air Force Base	4555	1	Garfield
	MC	Cherry Point MCAS - OLF Oak Grove	900	0	Jones		Army	Fort Sill	94220	1	Comanche
	MC	Cherry Point Range (BT-97)	3000	0	Carteret		Army	McAlester Army Ammunition Plant	44964	2	Pittsburg
ND	AF	Grand Forks Air Force Base	5422	1	Grand Forks	OR	AF	Kingsley Field Air Guard Station	1072	2	Klamath
	AF	Minot Air Force Base	5085	1	Ward		Army	Unatilla Chemical Depot	19729	3	Unatilla
NE	AF	Offutt Air Force Base	4044	1	Sardy		ARNG	Camp Rilea	2000	-1	Clatsop
	ARNG	Mead Army Natl Guard Facility	1000	-1	Saunders		Navy	Whidbey Island NAS - Boardman Range	47000	0	Morrow
NJ	AF	McGuire Air Force Base	3597	1	Burlington	PA	Army	DDD Susquehanna	848	2	Cumberland
	Army	Fort Dix	30997	1	Burlington		Army	Letterkenny Army Depot	19243	2	Franklin
	Army	Fort Monmouth	1101	1	Monmouth		Army	Site R - Raven Rock (AJCC)	718	-1	Adams
	Army	Picatinny Arsenal	6493	2	Morris		ARRes	Fort Indiantown Gap	17902	2	Dauphin
	Navy	Earle Naval Weapons Station - Mainiside	10000	1	Monmouth		Navy	Naval Inv. Control Pt, Mechanicsburg	824	3	Cumberland
	Navy	Earle Naval Weapons Station - Waterfront	1100	1	Monmouth		Navy	Willow Grove Naval Air Station	1100	2	Montgomery
	Navy	Lakehurst Naval Air Systems Command	7431	2	Ocean	RI	Navy	Newport Naval Educational & Training Center	1214	2	Newport
NM	AF	Cannon Air Force Base	4536	1	Curry	SC	AF	Charleston Air Force Base	3733	1	Charleston

ST	Service Branch	Property	Area (acres)	Cat.	Resident Cnty	ST	Service Branch	Property	Area (acres)	Cat.	Resident Cnty
AF	Holloman Air Force Base		59639	1	Otero		AF	Shaw Air Force Base	3363	1	Sumter
AF	Kirtland Air Force Base		52678	1	Bernalillo		Army	Fort Jackson	52301	1	Richland
AF	Meirosa Air Force Range		6614	-1	Roosevelt		MC	Beaufort MC Air Station	5800	1	Beaufort
SC	Beaufort MCAS - Laurel Bay Housing		1100	0	Beaufort		VA	Fort A. P. Hill	76000	3	Caroline
MC	Parris Island MC Recruit Depot		8113	1	Beaufort		Army	Fort Belvoir	8656	1	Fairfax
Navy	Charleston Naval Weapons Station		17429	3	Berkeley		Army	Fort Eustis	8229	1	Newport News
SD	Elsworth Air Force Base		10632	1	Pennington		Army	Fort Lee	5574	1	Prince George
TN	Milan Arsenal & Wildlife Mgmt Area		22624	2	Gobson		Army	Fort Monroe	1070	2	Hampton
Navy	Memphis Naval Air Station		3450	2	Shelby		Army	Fort Story	1451	2	Virginia Beach
TX	Brooks Air Force Base		1310	1	Bexar		Army	Radford AAP - New River Unit	3450	2	Pulaski
AF	Dyess Air Force Base		6405	1	Taylor		Army	Radford Army Ammunition Plant	3450	2	Pulaski
AF	Goodfellow Air Force Base		1136	1	Tom Green		ARNG	Fort Pickett	45160	-1	Dixie
AF	Lackland Air Force Base		6754	1	Bexar		MC	Quantico MC Base	60483	2	Prince William
AF	Laughlin Air Force Base		5131	1	Val Verde		Navy	Armed Forces Training - Camp Peary	9274	-1	York
AF	Randolph Air Force Base		5044	1	Bexar		Navy	Dan Neck Fleet Combat Training Center	1303	2	Virginia Beach
AF	Sheppard Air Force Base		6158	1	Wichita		Navy	Little Creek Naval Amphibious Base (LCNAB)	2120	1	Virginia Beach
Army	Fort Sam Houston		3260	1	Bexar		Navy	Naval Surface Warfare Center, Dahlgren	4321	2	King George
Army	Camp Bullis		12000	3	Bexar		Navy	Norfolk Naval Shipyard	801	2	Portsmouth
Army	Fort Bliss		1126514	1	El Paso		Navy	Norfolk Naval Station	3400	1	Norfolk
Army	Fort Hood		217345	1	Bell		Navy	Oceana NAS - ALF Fentress	2406	0	Chesapeake
Army	Longhorn Ordnance AAP		8493	3	Harrison		Navy	Oceana Naval Air Station	5916	1	Virginia Beach
Army	Red River Army Depot		19081	2	Bowie		Navy	Yorktown Naval Weapons Station	13248	3	York
ARNG	Camp Swift N. G. Facility		11700	-1	Bastrop		Navy	Yorktown NWS - Cheatham Annex	1579	0	York
ARNG	Fort Wolters		NA	-1	Parker		VT	Camp Johnson	NA	-1	Chittenden
Navy	Corpus Christi Naval Air Station		4506	2	Nueces		ARNG	Elban Allen Firing Range	NA	-1	Chittenden
Navy	Ft Worth NAS/Joint Reserve Base		1805	2	Tarrant		WA	Fairchild Air Force Base	4551	1	Spokane
Navy	Kingsville Naval Air Station		16334	2	Kleberg		AF	McChord Air Force Base	4616	1	Pierce
UT	Hill AFB - Little Mountain Annex		NA	0	Weber		Army	Fort Lewis	86176	1	Pierce
AF	Hill AFB - Utah Test & Trng Range (North)		NA	0	Tooele		Army	Yakima Firing Center	323400	3	Yakima
AF	Hill AFB - Utah Test & Trng Range (South)		NA	0	Tooele		Navy	Bangor Naval Submarine Base	6527	1	Kitsap
AF	Hill Air Force Base		6698	1	Davis		Navy	Indian Island Naval Magazine	2700	-1	Jefferson
Army	Deseret Chemical Depot		19000	2	Tooele		Navy	Puget Sound Naval Shipyard	1577	1	Kitsap
Army	Dugway Proving Grounds		798855	2	Tooele		Navy	Whidbey Island NAS - Ault Field	NA	0	Island
Army	Green River Launch Cmplx (WSMR)		NA	-1	Grand		Navy	Whidbey Island Naval Air Station	9126	1	Island
Army	Tooele Army Depot		25172	2	Tooele		WI	Volk Field CRTC	2336	-1	Juneau
ARNG	Camp Williams		25000	-1	Utah		ARRes	Fort McCoy	127730	2	Monroe
VA	Langley Air Force Base		3152	1	Hampton		WY	Francis E Warren Air Force Base	5866	1	Laramie
Army	Crane Island FISC Fuel Depot		NA	0	Portsmouth						

Table A3. State summary of study properties.

State	State	AF	Army	ARNG	Marines	Navy	Total Properties	Property Area Total	
AL	Alabama	1	3			3	7	121175	+
AZ	Arizona	4	3	4	1	1	13	4310951	+
AR	Arkansas	1	1	2			4	120710	
CA	California	5	6	1	4	20	36	3452967	+
CO	Colorado	5	3				8	420901	
CT	Connecticut					1	1	1812	
DE	Delaware	1					1	3908	
DC	District of Columbia	1				2	3	1842	
FL	Florida	7				17	24	656807	+
GA	Georgia	3	5		2	1	11	563197	
ID	Idaho	4	1				5	119994	+
IL	Illinois	1	2			1	4	5892	
IN	Indiana	1	2	1		1	5	119564	
IA	Iowa		1	1			2	23524	
KS	Kansas	2	4				6	166761	
KY	Kentucky		3				3	228876	
LA	Louisiana	1	2			1	4	241148	
ME	Maine					2	2	16506	
MD	Maryland	1	3			6	10	106039	+
MA	Massachusetts	3	2				5	29653	
MI	Michigan	1		1			2	150070	
MS	Mississippi					5	5	12771	+
MO	Missouri	1	2				3	73312	
MT	Montana	1		1			2	12073	
NE	Nebraska	1		1			2	5044	
NV	Nevada	4	1			5	10	3363089	+
NJ	New Jersey	1	3			3	7	60719	
NM	New Mexico	4	2				6	3086894	
NY	New York	1	3		1		5	134270	+
NC	North Carolina	3	3		5		11	343720	
ND	North Dakota	2					2	10507	
OH	Ohio	1	1			1	3	30116	
OK	Oklahoma	3	2				5	155720	
OR	Oregon	1	1	1		1	4	69801	
PA	Pennsylvania		4			2	6	40635	
RI	Rhode Island					1	1	1214	
SC	South Carolina	2	1		3	1	7	91839	
SD	South Dakota	1					1	10632	
TN	Tennessee		1			1	2	26074	
TX	Texas	7	6	2		3	18	1452976	+
UT	Utah	4	4	1			9	874725	+
VT	Vermont			2			2	NA	+
VA	Virginia	1	9	1	1	10	22	261043	+
WA	Washington	2	2			5	9	438673	+
WI	Wisconsin		2				2	130066	
WY	Wyoming	1					1	5866	
		83	88	19	17	94	301	21554076	+

Note: "+" indicates acreage is understated because of missing data for properties in the state.

Summary-Level Study Data

Table A4. Population indicators and factors.

State	Area (Sq MI)		Population						Popn Dnsty 1997	Metro Popn % 1997	Metro Area % 1997	Total Popn Growth Rate	
	Total State	Metro Portion	Total (1,000)			Metropolitan (1,000)						90-97	80-90
			1997	1990	1980	1997	1990	1980					
AL	51716	16626	4322	4048	3900	2927	2716	2565	83.6	67.72	32.1	6.76	3.79
AZ	113713	61404	4553	3679	2738	3992	3214	2371	40.0	87.68	54.0	23.76	34.38
AR	52913	8841	2523	2354	2289	1224	1112	1028	47.7	48.49	16.7	7.17	2.87
CA	157776	93338	32182	29926	23801	31108	28957	23035	204.0	96.66	59.2	7.54	25.73
CO	104101	19126	3892	3304	2909	3268	2788	2424	37.4	83.96	18.4	17.80	13.58
CT	4977	3525	3267	3289	3113	2982	3012	2863	656.5	91.27	70.8	-0.66	5.65
DE	2055	1063	735	669	595	601	555	497	357.8	81.82	51.7	9.88	12.46
DC	66	66	530	604	638	530	604	638	8021.1	100.00	100.0	-12.24	-5.41
FL	55815	32205	14677	13019	9840	13640	12099	9126	263.0	92.93	57.7	12.74	32.31
GA	58629	13029	7490	6506	5486	5140	4374	3525	127.8	68.63	22.2	15.12	18.60
ID	83344	2790	1209	1012	948	458	364	324	14.5	37.88	3.3	19.47	6.74
IL	56299	17346	11989	11447	11435	10117	9590	9463	213.0	84.38	30.8	4.74	0.11
IN	36400	13906	5865	5555	5491	4206	3971	3885	161.1	71.72	38.2	5.58	1.17
IA	56258	6607	2854	2780	2914	1270	1203	1199	50.7	44.49	11.7	2.69	-4.61
KS	82197	5701	2601	2481	2369	1457	1337	1188	31.6	56.03	6.9	4.87	4.71
KY	40320	6581	3910	3693	3664	1889	1784	1737	97.0	48.32	16.3	5.90	0.77
LA	45836	14762	4354	4219	4223	3274	3159	3138	95.0	75.21	32.2	3.18	-0.09
ME	32162	5008	1242	1231	1127	496	496	453	38.6	39.93	15.6	0.86	9.27
MD	9740	5898	5095	4797	4228	4724	4454	3930	523.1	92.71	60.6	6.20	13.48
MA	8173	7304	6114	6018	5746	6023	5930	5668	748.2	98.50	89.4	1.60	4.74
MI	57899	15877	9780	9311	9256	8083	7709	7707	168.9	82.65	27.4	5.04	0.59
MN	84520	17881	4687	4387	4085	3276	3022	2682	55.5	69.88	21.2	6.84	7.40
MS	47619	5655	2732	2577	2525	971	876	809	57.4	35.56	11.9	5.99	2.06
MO	69833	12297	5408	5126	4922	3676	3497	3317	77.4	67.97	17.6	5.50	4.15
MT	147245	5369	879	800	789	294	270	265	6.0	33.43	3.6	9.86	1.40
NE	77330	2624	1657	1581	1572	855	790	730	21.4	51.58	3.4	4.83	0.53
NV	110670	32965	1679	1219	810	1441	1029	674	15.2	85.82	29.8	37.75	50.41
NH	9260	1987	1172	1112	924	733	688	555	126.6	62.53	21.5	5.42	20.30
NJ	7508	7508	8058	7758	7376	8058	7758	7376	1073.4	100.00	100.0	3.88	5.17
NM	121757	11789	1724	1520	1309	980	846	709	14.2	56.87	9.7	13.42	16.08
NY	48562	22841	18146	18002	17567	16663	16524	16153	373.7	91.83	47.0	0.80	2.48
NC	49048	17164	7431	6657	5899	4974	4399	3763	151.5	66.94	35.0	11.62	12.85
ND	70812	6849	641	637	654	275	258	235	9.1	42.93	9.7	0.56	-2.60
OH	41194	18431	11193	10862	10801	9066	8838	8793	271.7	81.00	44.7	3.05	0.57
OK	70003	12290	3322	3147	3041	2004	1873	1734	47.4	60.32	17.6	5.55	3.50
OR	97074	13864	3243	2859	2641	2280	1997	1805	33.4	70.28	14.3	13.46	8.23
PA	45360	21810	12011	11896	11868	10153	10094	10069	264.8	84.53	48.1	0.97	0.23
RI	1045	957	987	1005	949	904	917	867	944.9	91.60	91.6	-1.73	5.88
SC	30867	12510	3788	3499	3135	2649	2432	2126	122.7	69.94	40.5	8.26	11.63
SD	77195	4203	738	697	691	249	221	194	9.6	33.69	5.4	5.90	0.84
TN	42092	12910	5372	4891	4600	3648	3320	3064	127.6	67.91	30.7	9.84	6.31
TX	264436	53622	19386	17045	14338	16340	14227	11638	73.3	84.29	20.3	13.74	18.88
UT	84872	8340	2065	1730	1473	1586	1346	1141	24.3	76.82	9.8	19.38	17.46
VT	9603	1496	589	564	513	191	178	155	61.3	32.50	15.6	4.28	10.14
VA	39820	14735	6737	6214	5368	5257	4796	3986	169.2	78.03	37.0	8.43	15.74
WA	67290	18963	5614	4901	4155	4652	4066	3386	83.4	82.86	28.2	14.56	17.96
WV	24229	3870	1815	1792	1951	759	748	796	74.9	41.83	16.0	1.27	-8.14
WI	56088	13228	5201	4902	4712	3530	3339	3178	92.7	67.87	23.6	6.10	4.03
WY	97803	8051	480	453	474	142	134	142	4.9	29.63	8.2	5.87	-4.38
US	3679192	717560	267744	249439	227225	214141	198978	178048	72.8	79.98	19.5	7.34	9.78

Table A5. Urban development, earnings, and proximity indicators and factors.

State	State Area	Urban Dvlpmnt		Per Capita Earnings			DOD Prpty in MSAs	UrDvlp Area % 1997	Per Capita Earnings Growth Rate		UrDvlp Grwth 87-97	% DOD Prpty in MSAs
		Acres (1,000)		1997	1990	1980			90-97	80-90		
		1997	1987									
AL	51716	2409.8	1839.4	20672	15213	7737	7	4.66	35.88	96.63	31.01	100.0
AZ	113713	1675.2	1326.4	21998	16608	9359	11	1.47	32.45	77.45	26.30	84.6
AR	52913	1500.8	1203.8	19595	14025	7476	4	2.84	39.71	87.60	24.67	100.0
CA	157776	5687.1	4464.4	26314	21363	11831	31	3.60	23.18	80.57	27.39	86.1
CO	104101	1705.6	1430.2	27015	19290	10748	7	1.64	40.05	79.48	19.26	87.5
CT	4977	897.0	795.4	35863	26453	12322	1	18.02	35.57	114.68	12.77	100.0
DE	2055	237.6	184.9	28493	21590	10614	1	11.56	31.97	103.41	28.50	100.0
DC	66	NA	NA	35704	25646	12412	3	NA	39.22	106.62	NA	100.0
FL	55815	5448.7	3752.7	24799	19127	9957	22	9.76	29.65	92.10	45.19	91.7
GA	58629	4238.1	2698.2	23882	17385	8426	9	7.23	37.37	106.33	57.07	75.0
ID	83344	810.8	678.1	20392	15346	8575	1	0.97	32.88	78.96	19.57	20.0
IL	56299	3261.5	2874.9	27688	20494	11021	4	5.79	35.10	85.95	13.45	100.0
IN	36400	2355.7	1973.3	23202	17167	9327	2	6.47	35.15	84.06	19.38	40.0
IA	56258	1802.8	1675.5	23120	16885	9495	1	3.20	36.93	77.83	7.60	50.0
KS	82197	2881.8	2605.5	23972	17940	9950	3	3.51	33.62	80.30	10.60	50.0
KY	40320	1955.3	1435.7	20570	15085	8108	2	4.85	36.36	86.05	36.19	66.7
LA	45836	1692.5	1412.0	20458	14773	8781	3	3.69	38.48	68.24	19.87	75.0
ME	32162	746.6	532.8	21937	17159	8302	1	2.32	27.85	106.69	40.13	50.0
MD	9740	1290.6	1002.9	28674	22482	10926	7	13.25	27.54	105.77	28.69	70.0
MA	8173	1549.0	1140.2	31239	23210	10780	5	18.95	34.59	115.31	35.85	100.0
MI	57899	3763.7	2953.7	24956	18699	10298	1	6.50	33.46	81.58	27.42	50.0
MN	84520	2360.9	1941.2	26243	19348	10156		2.79	35.64	90.51	21.62	
MS	47619	1655.8	1279.6	18098	12706	6932	1	3.48	42.44	83.29	29.40	20.0
MO	69833	2652.5	2239.4	23629	17639	9365	1	3.80	33.96	88.35	18.45	33.3
MT	147245	881.3	692.5	19660	15038	8842	1	0.60	30.74	70.07	27.26	50.0
NE	77330	1267.9	1166.4	23618	17536	9139	1	1.64	34.68	91.88	8.70	50.0
NV	110670	415.8	339.9	26514	20209	11626	4	0.38	31.20	73.83	22.33	40.0
NH	9260	641.7	476.7	27766	20728	9917		6.93	33.95	109.01	34.61	
NJ	7508	1848.9	1490.2	32356	24883	11777	7	24.63	30.03	111.28	24.07	100.0
NM	121757	1324.6	895.5	19298	14480	8250	2	1.09	33.27	75.52	47.92	33.3
NY	48562	3373.2	2756.3	30250	23106	11043	3	6.95	30.92	109.24	22.38	60.0
NC	49048	4180.6	2905.9	23168	16649	8090	5	8.52	39.16	105.80	43.87	45.5
ND	70812	1152.2	1034.4	20103	15264	7803	1	1.63	31.70	95.62	11.39	50.0
OH	41194	3796.5	3009.9	24163	18116	9894	3	9.22	33.38	83.10	26.13	100.0
OK	70003	1996.7	1700.9	20305	15613	9463	3	2.85	30.05	64.99	17.39	60.0
OR	97074	1295.5	1071.3	23920	17423	9968		1.33	37.29	74.79	20.93	0.0
PA	45360	4335.5	2965.9	25670	19371	10030	4	9.56	32.52	93.13	46.18	66.7
RI	1045	204.8	177.5	25667	19698	9685	1	19.60	30.30	103.39	15.38	100.0
SC	30867	2325.3	1565.5	20508	15427	7648	4	7.53	32.94	101.71	48.53	57.1
SD	77195	1034.6	901.2	21076	15488	7852		1.34	36.08	97.25	14.80	0.0
TN	42092	2617.9	1775.7	22699	16309	8145	1	6.22	39.18	100.23	47.43	50.0
TX	264436	8984.1	7051.0	23707	17290	9939	15	3.40	37.11	73.96	27.42	83.3
UT	84872	760.4	594.3	20185	14214	8021	3	0.90	42.01	77.21	27.95	33.3
VT	9603	346.1	292.1	23017	17677	8629	2	3.60	30.21	104.86	18.49	100.0
VA	39820	2805.2	2127.9	26109	20021	9954	19	7.04	30.41	101.14	31.83	86.4
WA	67290	2213.6	1653.4	26451	19605	10787	8	3.29	34.92	81.75	33.88	88.9
WV	24229	986.1	633.2	18724	14176	8075		4.07	32.08	75.55	55.73	
WI	56088	2543.1	2129.6	24048	17692	9899		4.53	35.93	78.73	19.42	0.0
WY	97803	715.5	681.0	22596	17174	11469	1	0.73	31.57	49.74	5.07	100.0
US	3679192	105369.1	82010.4	25288	19156	10062		2.86	32.01	90.38	28.48	

Table A6. Department of Defense indicators and factors.

State	Installation Prpty Area (acres)	Spending (1M)		Employees (1000)		Payroll \$ Per Employee	Military Employee Per Area
		Contracts	Payroll	Civilian	Military		
AL	121175	2,107	2,150	22.1	15.6	57029	0.129
AZ	4310951	1,977	1,919	8.4	22.3	62508	0.005
AR	120710	191	764	3.7	5.2	85843	0.043
CA	3452967	18,477	12,396	79.0	122.0	61672	0.035
CO	420901	1,900	2,267	11.5	29.4	55428	0.070
CT	1812	2,536	602	2.8	5.7	70824	3.146
DE	3908	104	301	1.5	3.9	55741	0.998
DC	1842	1,526	1,192	12.8	14.5	43663	7.872
FL	656807	6,394	6,910	28.3	57.4	80630	0.087
GA	568567	3,950	4,090	31.8	62.9	43189	0.111
ID	119994	147	345	1.4	4.5	58475	0.038
IL	5892	1,248	2,073	14.7	30.4	45965	5.160
IN	119564	1,721	867	9.9	1.3	77411	0.011
IA	23524	438	250	1.5	0.5	125000	0.021
KS	166761	688	936	5.7	16.7	41786	0.100
KY	228876	1,201	1,433	7.8	33.9	34365	0.148
LA	241148	1,759	1,283	8.0	17.5	50314	0.073
ME	16506	946	544	5.2	2.0	75556	0.121
MD	106039	3,889	3,346	33.9	30.5	51957	0.288
MA	29653	4,910	866	7.4	3.3	80935	0.111
MI	150070	1,101	805	7.9	1.2	88462	0.008
MN		1,091	407	2.5	0.9	119706	
MS	12771	1,431	1,277	9.7	12.4	57783	0.971
MO	73312	4,766	1,407	10.5	15.1	54961	0.206
MT	12073	81	255	1.2	3.6	53125	0.298
NE	5044	261	691	3.6	9.0	54841	1.784
NV	3363089	257	726	2.1	7.8	73333	0.002
NH		388	272	1.3	0.4	160000	
NJ	60719	3,016	1,589	18.1	7.5	62070	0.124
NM	3086894	512	1,129	8.1	13.2	53005	0.004
NY	134270	3,178	1,675	12.3	18.9	53686	0.141
NC	343720	1,110	4,062	17.3	91.9	37198	0.267
ND	10507	127	370	1.7	8.7	35577	0.828
OH	30116	2,676	2,256	26.1	8.2	65773	0.272
OK	155720	751	2,085	19.4	27.1	44839	0.174
OR	69801	168	517	2.8	0.9	139730	0.013
PA	40635	3,039	2,213	29.9	3.6	66060	0.089
RI	1214	275	481	4.5	3.3	61667	2.718
SC	91839	919	2,127	10.2	33.7	48451	0.367
SD	10632	89	230	1.3	3.1	52273	0.292
TN	26074	1,211	924	5.0	1.9	133913	0.073
TX	1452976	7,411	8,070	49.7	111.0	50218	0.076
UT	874725	442	892	12.4	4.9	51561	0.006
VT	NA	97	88	0.5	0.1	146667	NA
VA	261043	11,188	10,544	82.0	84.5	63327	0.324
WA	438673	2,517	3,713	23.8	37.9	60178	0.086
WV		150	275	1.8	0.5	119565	
WI	130066	565	403	3.2	0.7	103333	0.005
WY	5866	48	214	1.0	3.5	47556	0.597
US	21559446	106,561	97,296	689.2	1045.3	56095	0.048

Notes: Population and earnings data were obtained from the Regional Economic Information System (REIS) produced by the US Department of Commerce Bureau of Economic Analysis. Urban development acreages were obtained from the National Resources Inventory (NRI) produced by the US Department of Agriculture Natural Resources Conservation Service. Department of Defense (DOD) data was obtained from the US Census Bureaus's 1999 Statistical Abstract of the United States.

Table A7. County of residence level risk rankings for all properties.

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size			Economic Strength				Proximity UA Class	DOD			At Risk Level	
					Population		UpDvlp Cnty %	Population Growth %	Earn. Per Capita		Military Employment		At Risk				
					Total 1997	Dnsity City(20mi) 1990			90-97	90-97	% Of Templ			Change 85-97	Per DOD Area		
																	\$
Navy	WFFAS - Silverhill Fld	NA	AL	Baldwin				6	9					184	137		
Navy	WFFAS - Summerdale Fld	NA	AL	Baldwin				6	9					184	137		
Navy	WFFAS - Barrin Fld	650	AL	Baldwin				6	9					184	137		
Army	Annisson Army Depot	15279	AL	Calhoun							3			27			
Army	Fort Rucker	63232	AL	Dale								194	28				
Army	Redstone Arsenal	37910	AL	Madison							2		41				
AF	Maxwell AFB	4104	AL	Montgomery							2				143		
Army	Ft Huachuca - Dry Lake EPG	30740	AZ	Cochise								188					
Army	Fort Huachuca	73272	AZ	Cochise								188					
Army	Camp Navaho	28400	AZ	Coconino				40	39	41		8			11		
Navy	Naval Observatory - Flagstaff	NA	AZ	Coconino				40	39	41		8			11		
AF	Luke AFB - ALF 1	1105	AZ	Maricopa	3			13	34					32	153		
AF	Luke AFB	4199	AZ	Maricopa	3	22		13	34		2		Y		32	153	M
Army	Buckeye Nat'l Guard Target Range	NA	AZ	Maricopa	3			13	34						32	153	
AF	Davis-Monthan AFB	10633	AZ	Pima	19			41			2		Y		207		L
AF	Ritterhouse Training Area	480	AZ	Pinal				20					41			14	
Army	Camp Florence	25752	AZ	Pinal				20					41			14	
Army	Yuma Proving Ground	1009376	AZ	Yuma				34	13							2	
AF	Barry M. Goldwater Range	2664423	AZ	Yuma				34	13		3					2	
MC	Yuma MC Air Station	462571	AZ	Yuma				34	13		2					2	
Army	Pine Bluff Arsenal	14500	AR	Jefferson							2					28	
Army	Camp Robinson	33000	AR	Pulaski				38		23	2		Y		39		H
AF	Little Rock AFB	7210	AR	Pulaski				38		23	2		Y		39		H
Army	Fort Chaffee	66000	AR	Sebastian							2					9	
Army	Camp Parks	2705	CA	Alameda	9	9	21				2		Y	22	5	146	H
Navy	Concord Ocean Terminal	7600	CA	Contra Costa	16	22	29	24			2		Y	23	42		H
Navy	Seal Beach NWS - Concord	5200	CA	Contra Costa	16	22	16	24			2		Y	23	42		H
Navy	Chocolate Mountains Range	NA	CA	Imperial												9	
Navy	EI Centro Bombing Range	56000	CA	Imperial				10								9	
Navy	EI Centro NAF	3000	CA	Imperial				10								9	
Navy	China Lake NAWS	1102344	CA	Kern	30											5	
AF	Edwards AFB	300723	CA	Kern	30								Y			5	H
Navy	Lemoore NAS	39173	CA	Kings/Fresno										178			
Army	Sierra Army Depot	36000	CA	Lassen				28	40							4	

Depl.	Property	Area (acres)	ST	Resident Cnty	Community Size				Economic Strength				Proximity UA Proximity Class	At Risk	DOD			At Risk Level
					Population		Urdvlp Cnty %	Population Growth % 90-97	Earn. Per Capita Grwth% 90-97	% Of Temp	Military Employment Change 85-97	Per DOD Area						
					Total 1997	Dnsity City(20mi) 1990												
Navy	NI NAS - San Clemente Isl	NA	CA	Los Angeles	1	8	16				39		5	4	NA			
Army	Presidio of Monterey	1134	CA	Monterey							37			3	26			
Army	Fort Hunter-Liggett	165500	CA	Monterey							37			3	26			
Navy	Seal Beach NWS	16823	CA	Orange	4	3	2	6			14							
AF	March Air Reserve	6885	CA	Riverside	7	19			30	2			1	Y	14		H	
Navy	China Lake NWC	NA	CA	San Bernardino	6					5			2	Y	18	29	H	
Army	Fort Irwin	636214	CA	San Bernardino	6					5						10		
MC	Barstow MC Logistics Base	5704	CA	San Bernardino	6					5						10		
MC	Twentynine Palms	603617	CA	San Bernardino	6					5						10		
MC	Camp Pendleton	186471	CA	San Diego	2	39	31			5						10		
Navy	Seal Beach NWS - Fallbrook	8851	CA	San Diego	2	39				28			2	Y	1		H	
Navy	Miramar MCAS	23606	CA	San Diego	2	39	12			28			2	Y	1		H	
Navy	San Diego Nvl Sub. Base	314	CA	San Diego	2	39	13			28			2	Y	1		H	
Navy	North Island NAS	46575	CA	San Diego	2	39	13			28			1	Y	1		H	
Navy	San Diego Nvl Station	1518	CA	San Diego	2	39	14			28			1	Y	1		H	
Navy	Coronado NAB	1065	CA	San Diego	2	39	14			28			2	Y	1		H	
Navy	North Isl NAS - Imp1 Beach	1190	CA	San Diego	2	39	15			28			1	Y	1		H	
Navy	Stockton Nvl Communicat'n	2787	CA	San Joaquin	34					35			2	Y	10		H	
Army	DDD San Joaquin - Lathrop	724	CA	San Joaquin	34					35			3	Y	10		H	
Army	Camp Roberts	42784	CA	San Luis Obispo						31					2	12		
AF	Vandenberg AFB	98256	CA	Santa Barbara							23	2				32		
AF	Travis AFB	7580	CA	Solana		58			8				2	Y		33	H	
Navy	Port Hueneme CBC	1820	CA	Ventura	24						30		2	Y			M	
Navy	Point Mugu NWS	4490	CA	Ventura	24						30	2	2	Y			M	
Navy	Point Mugu NWS-San Nicolas Isl	13370	CA	Ventura	24						30							
AF	Beale AFB	22944	CA	Yuba														
Army	Buckley ANGB	3832	CO	Arapahoe	40	42	17						3		186			
AF	USAF Academy	18500	CO	El Paso	38			38		22	9		2	Y	38	199	M	
AF	USAF - Farish Rec Area	652	CO	El Paso	38			29		38			2	Y	173	20	M	
AF	Peterson AFB	1277	CO	El Paso	38			29		38					173	20		
AF	Fort Carson	137400	CO	El Paso	38			29		38			2	Y	173	20	M	
AF	NORAD COC Cntr	NA	CO	El Paso	38			29		38			2	Y	173	20	M	
Army	Fort Carson - Pinon Canyon	235600	CO	Las Animas											34		1	
Army	Pueblo Ordnance Depot	23121	CO	Pueblo											24		17	
Navy	New London Sub Base	1812	CT	New London							18	2				21	161	

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size				Economic Strength					Proximity UA Proximity Class	At Risk	DOD			At Risk Level
					Population			UrDvlp Cnty %	Population Growth % 90-97	85-90	90-97	90-97	1997			\$	Military Employment		
					Total 1997	Dnsly % 1990	City(20mi) 1990										% Of Templ	Change Per Area	
Navy	Anacostia Nvl Station	292	DC	Washington	35	1	4	1				32	8	Y			167	L	
AF	Bolling AFB	604	DC	Washington	35	1	5	1				32	8	Y			167	L	
Navy	Nvl Research Lab. DC	946	DC	Washington	35	1	6	1				32	8	Y			167	L	
AF	Dover AFB	3908	DE	Kent															
Navy	Panama City NCSS	1116	FL	Bay															
AF	Tyndall AFB	29102	FL	Bay															
AF	Cape Canaveral AFS	15435	FL	Brevard	42														
AF	Patrick AFB	2341	FL	Brevard	42							21		Y				M	
Navy	Stevens Lake Range	NA	FL	Clay								16	15				185	NA	
AF	Homestead ARB	867	FL	Dade	5	25		36						2	17	22	165		
Navy	Mayport Naval Station	2552	FL	Duval	21	30	57	23						2		17	160		
Navy	Jacksonville NAS	3923	FL	Duval	21	30	49	23						1		17	160		
Navy	Kings OLF	NA	FL	Escambia				41						3	172	211	144		
Navy	WFNAS - Sauley Fld	867	FL	Escambia				41						2	172	211	144		
Navy	Corry Station Trng Center	737	FL	Escambia				41						1	172	211	144		
Navy	Pensacola NAS	7336	FL	Escambia				41						2	172	211	144		
AF	MacDill AFB	5631	FL	Hillsborough	15	34	27	32				40		2	Y		138	L	
Navy	Pinecastle Target Range	5825	FL	Marion					35	11					15	190			
Navy	Key West NAS	5293	FL	Monroe									16						
AF	Eglin AFB	463452	FL	Okaloosa										2		192	209	25	
AF	Avon Park Range	100929	FL	Polk											7	176	10		
Navy	Rodman Bombing Range	NA	FL	Pulham													NA		
Navy	Whiting Field NAS	10761	FL	Santa Rosa					4	16									
Navy	WFNAS - Harold OLF	NA	FL	Santa Rosa					4	16									
Navy	WFNAS - Spencer OLF	NA	FL	Santa Rosa					4	16				3					
Navy	WFNAS - Santa Rosa OLF	NA	FL	Santa Rosa					4	16									
Navy	WFNAS - Choctaw OLF	NA	FL	Santa Rosa					4	16									
Navy	WFNAS - Holley OLF	640	FL	Santa Rosa					4	16				3					
Navy	Kings Bay Nvl Submarine Support	16667	GA	Camden					3	1									
Army	Fort Benning	184051	GA	Chattahoochee								8		2		203	210		
Army	Fort McPherson - Fort Gillem	1424	GA	Clayton		18	47	13						1		214	23		
AF	Dobbins AFB	1913	GA	Cobb	33	14	38	8	23	17				1	Y		198	L	
Army	Fort Stewart - Hunter AF	5370	GA	Cobb	33	14		8	23	17				2	Y		198	L	
MC	MC Logistics Base Albany	3841	GA	Dougherty								26		2					
Army	Fort McPherson	487	GA	Fulton	22	19	39	7				10	5	1	Y	16		166	
																		M	

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size				Economic Strength				Proximity UA Class	At Risk	DOD			At Risk Level
					Population		Urdvlp Cnty %	Population Growth %	Earn. Per Capita		Military Employment % Of Templ	Change Per DOD 85-97			Area			
					Total 1997	Dnsity City(20mi) 1990			Dnsity %	City(20mi) 1990						Grwth% 90-97	\$ 1997	
AF	Robins AFB	8722	GA	Houston									2			201		
Army	Fort Stewart	279271	GA	Liberty									3		213	208		
AF	Moody AFB	6050	GA	Lowndes								33				197		
MC	Beaufort MCAS - Townsend Range	5183	GA	McIntosh													8	
Army	Fort Gordon	55588	GA	Richmond						25			2			30		
AF	Boise Air Terminal	1994	ID	Ada														
AF	Mountain Home Small Arms Range	3000	ID	Elmore												191		
AF	Mountain Home AFB	6000	ID	Elmore											207	193		
Army	Pershing II Launch Site	NA	ID	Owyhee													1	
AF	Saylor Creek Trng Range	109000	ID	Owyhee													1	
Navy	Great Lakes Trng Cntr	1030	IL	Lake	32	21	30	26			16	2	2	Y		169	L	
Army	CM Price Support Cntr	686	IL	Madison			24						1		12			
Army	Rock Island Arsenal	946	IL	Rock Island				35					1		28			
AF	Scott Air Force Base	3230	IL	St. Clair									3					
Army	Camp Atterbury	35000	IN	Bartholomew							39				9		7	
Army	Indiana AAP	11347	IN	Clark							42		3		29	23		
Navy	Crane NSW Cntr	62938	IN	Martin												3		
AF	Grissom ARB	3181	IN	Miami												38	32	
Army	Newport AAP	7098	IN	Vermillion													10	
Army	Iowa AAP	19124	IA	Des Moines													11	
Army	Camp Dodge	4400	IA	Polk		41		33					2	Y	35	189	M	
Army	Fort Riley	100671	KS	Geary/Riley											209	16		
Army	Sunflower AAP	9542	KS	Johnson		33		31	39	29	29	7	3	Y	36			H
Army	Kansas AAP	13835	KS	Labette													8	
Army	Fort Leavenworth	5600	KS	Leavenworth											182			
AF	Smoky Hill ANG Range	34000	KS	Saline								32			39		8	
AF	McConnell AFB	3113	KS	Sedgwick				34					2				142	
Army	Fort Campbell	105070	KY	Christian									2		211	205		
Army	Fort Knox	109210	KY	Hardin									3		195	11		
Army	Blue Grass Army Depot	14596	KY	Madison							30						16	
AF	Barksdale AFB	22361	LA	Bossier							11		2		184	186		
Navy	New Orleans NAS	4919	LA	Plaquemines		42							2					
Army	Fort Polk	198894	LA	Vernon							21				208	15	31	
Army	Louisiana AAP	14974	LA	Webster												173	15	
Navy	Brunswick NAS	15910	ME	Cumberland								20						

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size			Economic Strength				Proximity UA		DOD			At Risk Level			
					Total 1997	Population		UrDvlp Cnty %	Population Growth % 90-97	85-90	90-97	Earn. Per Capita \$	Growth%	90-97	Proximity Class	AI Risk		Military Employment		
						Dnsity City(20mi) 1990	City(20mi) 1990											% Of Templ	Change 85-97	Per DOD Area
Navy	US Naval Radio Station	596	ME	Washington																
Army	Fort Meade	5415	MD	Anne Arundel	39	24	3	30				17	2	Y		148	L			
Navy	Naval Academy	2001	MD	Anne Arundel	39	24		30				17	2	Y		148	L			
Navy	Solomon's NRC	NA	MD	Calvert					5	6		42			188	NA	M			
Navy	Naval SWC- Indian Hd	3410	MD	Charles			56			18			3	Y						
Navy	Blood Isl Range-Little Ck Fld	6013	MD	Dorchester												19				
Army	Fort Detrick	1200	MD	Frederick					27	30		33	1			183	140			
Army	Aberdeen Proving Ground	72500	MD	Harford			25			25			3	Y			M			
AF	Andrews AFB	7550	MD	Prince Georges	20	15	10	12					1							
Navy	Patuxent River NAS	6950	MD	St Marys					27											
Navy	PR NAS - Webster Fld	1000	MD	St Marys						27										
AF	Otis ARNG/Camp Edwards	21000	MA	Barnstable								13	3							
AF	Westover AFB	2581	MA	Hampden		37		28					2		33					
AF	Hanscom AFB	846	MA	Middlesex	8	11	8	15		36	6		2	Y	40	12	163			
Army	Natick Soldier Center	226	MA	Middlesex	8	11	18	15		36	6		2	Y	40	12	163			
Army	Devens Res. Trng Area	5000	MA	Worcester	23		59					31	3	Y	30		H			
Army	Camp Grayling	147000	MI	Crawford						37					14		1			
AF	Selridge ANGB	3070	MI	Macomb	18	12	11	9			40		2	Y	11		H			
Navy	Construction Battalion Cntr	4771	MS	Harrison							4		1		181	35	155			
Navy	Meridian NAS - Williams Fld	NA	MS	Kemper							12						NA			
Navy	Meridian NAS	8000	MS	Lauderdale							27									
Navy	Multipurpose Target Range	NA	MS	Noxubee							5						NA			
Navy	Alpha NAAS	NA	MS	Noxubee							5						NA			
Army	Lake City AAP	3950	MO	Jackson	28	27	44	17					3							
AF	Whiteman AFB	4627	MO	Johnson											187					
Army	Fort Leonard Wood	64735	MO	Pulaski							7				210					
AF	Malinstrom AFB	3573	MT	Cascade									2							
Army	Fort William H Harrison	8500	MT	Lewis & Clark												27				
AF	Offutt AFB	4044	NE	Sapry									2		196	26	150			
Army	Mead ARNG	1000	NE	Saunders																
Navy	Fallon NAS - Bravo 20	41007	NV	Churchill					14	20					175	194	6			
Navy	Fallon NAS	126789	NV	Churchill					14	20					175	194	6			
Navy	Fallon NAS - Bravo 16	17280	NV	Churchill					14	20					175	194	6			
Navy	Fallon NAS - Bravo 17	21400	NV	Churchill					14	20					175	194	6			
Navy	Fallon NAS - Bravo 19	17330	NV	Churchill					14	20					175	194	6			

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size				Economic Strength				Proximity UA Proximity Class	At Risk	DOD		At Risk Level
					Population		Urdvlp Cnty %	Population Growth % 90-97	85-90	90-97	Earn. Per Capita \$ 1997	Military Employment % Of Change Templ 85-97			Per DOD Area		
					Total 1997	Dnsity % City(20mi) 1990											
AF	Nellis AFB - Indian Springs	NA	NV	Clark	12				2	4		34					
AF	Nellis AFB Sm Arms Ring	4800	NV	Clark	12	55			2	4		34	3	Y			M
AF	Nellis AFB	6400	NV	Clark	12	51			2	4		34	2	Y			M
Navy	Hawthorne Army Depot	147000	NV	Mineral											25	1	
AF	Nellis Air Force Range	3100000	NV	Nye					1	14					27	1	
Army	Fort Dix	30997	NJ	Burlington				39				22	3	Y			H
AF	Mc Guire AFB	3597	NJ	Burlington				39				22			9		
Navy	Earle NWS – Waterfront	1100	NJ	Monmouth	31	20	1	22				10	1	Y			M
Army	Fort Monmouth	1101	NJ	Monmouth	31	20		22				10	1	Y			M
Navy	Earle NWS – Main Side	10000	NJ	Monmouth	31	20		22				10	2	Y			M
Army	Picatinny Arsenal	6493	NJ	Morris	43	29	41	27				1	2	Y	1		H
Navy	Lakehurst NASC	7431	NJ	Ocean	37	35		37				38	2	Y			M
AF	Kirtland AFB	52678	NM	Bernalillo	36			42			28		2	Y			M
AF	Cannon AFB	4536	NM	Curry											199	192	
Army	White Sands Missile Ring	2285327	NM	Doña Ana					25	33					178	1	
AF	Holloman AFB	59639	NM	Otero											197	36	7
Army	Fort Bliss McGregor Ring	678100	NM	Otero									3		197	36	7
AF	Melrose Range	NA	NM	Roosevelt												NA	
Army	Fort Drum	107265	NY	Jefferson						9					198	214	
AF	Hancock Field	371	NY	Onondaga	41								2		4		158
MC	MC Reserve Trng Cntr	NA	NY	Onondaga	41								1		4		158
Army	USMA West Point	16000	NY	Orange									3				
Army	Seneca Army Depot	10634	NY	Seneca											26		8
Army	Ocean Terminal Sunny Point	16000	NC	Brunswick					8	41			3			179	15
MC	Cherry Point Range BT-9	3000	NC	Carteret							18						
MC	Cherry Pt MCAS – Bogue Fld	875	NC	Carteret							18						
MC	Cherry Point MCAS	13164	NC	Craven							20				191	37	
Army	Fort Bragg	160817	NC	Cumberland				40			3		2	Y	205		L
AF	Pope AFB	1750	NC	Cumberland				40			3		2	Y	205		L
AF	Cherry Pt Dare City Ring	10000	NC	Dare					26	3						182	22
Navy	Cherry Pt MCAS - Oak Grove Fld	900	NC	Jones							6					24	
MC	Camp Lejeune	127439	NC	Onslow							1		2		212		
Army	Fort Bragg - Camp Mackall	6542	NC	Richmond												20	
AF	Seymour Johnson AFB	3233	NC	Wayne							25		2			141	
AF	Grand Forks AFB	5422	ND	Grand Forks									3		174		

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size			Economic Strength			Proximity UA Proximity Class	At Risk	DOD			At Risk Level
					Population		Urdvlp Cnty %	Population Growth % 90-97	Growth % 85-90	Earn. Per Capita Growth% 90-97			\$ 1997	% Of Templ 85-97	Change Per DOD Area	
					Total 1997	Dnsity City(20mi) % 1990										
AF	Minot AFB	5085	ND	Ward									185			
Navy	DSC - Columbus	551	OH	Franklin	13	10	40	14		29	1	Y	3		162	M
AF	Wright-Patterson AFB	8145	OH	Greene				43			2					
Army	Ravenna AAP	21420	OH	Portage			60				3		21		18	
Army	Fort Sill	94220	OK	Comanche							2		201	19		
AF	Vance AFB	4555	OK	Garfield												
AF	Allus AFB	6981	OK	Jackson									190			
AF	Tinker AFB	5000	OK	Oklahoma	29	31	46	20			1				152	
Army	McAlester AAP	44964	OK	Pittsburg											6	
Army	Camp Rilea	2000	OR	Clatsop										175		
AF	Kingsley Field AGS	1072	OR	Klamath												
Navy	Whidbey Isl NAS-Boardman Ring	47000	OR	Morrow					15						2	
Army	Umatilla Chemical Depot	19729	OR	Umatilla											12	
Army	Site R - Raven Rock (AJCC)	718	PA	Adams												
Army	DDD Susquehanna	848	PA	Cumberland						26	2					
Navy	Nvl Inv. Control - Mechanicsburg	824	PA	Cumberland						26	1					
Army	Fort Indiantown Gap	17902	PA	Dauphin						27	3		6			
Army	Letterkenny Army Depot	19243	PA	Franklin									37		21	
Navy	Willow Grove NAS	1100	PA	Montgomery	25	16	7	10		3	2	Y	42		159	M
Navy	Newport Nvl Trng Cntr	1214	RI	Newport		28	52			24	2	Y			157	L
MC	Beaufort MCAS	5800	SC	Beaufort					21	41			193			
MC	Beaufort MCAS - Laurel Bay Housing	1100	SC	Beaufort					21	41			193			
MC	Parris Island Recruit Depot	8113	SC	Beaufort					21	41			193			
Navy	Charleston NWS	17429	SC	Berkeley							2				33	
AF	Charleston AFB	3733	SC	Charleston							1			2	154	
Army	Fort Jackson	52301	SC	Richland							2			40		
AF	Shaw AFB	3363	SC	Sumter							2		180		145	
AF	Ellsworth AFB	10632	SD	Pennington							3			34		
Army	Milan Arsenal	22624	TN	Gobson						34					9	
Navy	Memphis NAS	3450	TN	Shelby	17	23	53	19		17	3	Y		7	139	M
Army	Camp Swift NG Facility	11700	TX	Bastrop					11	31			206	177	12	
Army	Fort Hood	217345	TX	Bell						37	2			212		
Army	Camp Bullis	12000	TX	Bexar	10	26	34	29		24	2	Y		18		H
AF	Randolph AFB	5044	TX	Bexar	10	26	33	29		24	2	Y		18		H

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size				Economic Strength				Proximity UA Class	At Risk	DOD			At Risk Level
					Population		UrDvlp Cnty %	Population Growth %	Earn. Per Capita		Military Employment	Change % Of Templ			Per DOD Area			
					Total 1997	Dnsity % 1997			City(20mi) 1990	90-97						85-90	90-97	
Army	Fort Sam Houston	3260	TX	Bexar	10	26	34	29			24		1	Y		18	H	
AF	Lackland AFB	6754	TX	Bexar	10	26	35	29			24		2	Y			18	H
AF	Brooks AFB	1310	TX	Bexar	10	26	34	29			24		1	Y			18	H
Army	Red River Army Depot	19081	TX	Bowie									3		13		13	
Army	Fort Bliss	1126514	TX	El Paso	26	36							2		13	10		
Army	Longhorn Ordnance AAP	8493	TX	Harrison											20	18		
Navy	Kingsville NAS	16334	TX	Kleberg							35					33		
Navy	Corpus Christi NAS	4506	TX	Nueces									2			196		
Army	Fort Wolters	NA	TX	Parker						31	19					180	NA	
AF	Carswell Air Reserve	NA	TX	Tarrant	11	17	32	18				36	1	Y	19	25	NA	H
AF	Dyess AFB	6405	TX	Taylor									2					
AF	Goodfellow AFB	1136	TX	Tom Green									3			206	156	
AF	Laughlin AFB	5131	TX	Val Verde														
AF	Sheppard AFB	6158	TX	Wichita									2					
AF	Hill AFB	6698	UT	Davis					33		19		1		176		136	
	Green River Launch Cmplx																	
Army	(WSMR)	NA	UT	Grand					22								NA	
AF	Ulah Test Range (North)	NA	UT	Tooele					37								1	
AF	Ulah Test Range (South)	NA	UT	Tooele					37								1	
Army	Tooele Army Depot	25172	UT	Tooele					37								1	
Army	Dugway Proving Grounds	798855	UT	Tooele					37								1	
Army	Deseret Chemical Depot	19000	UT	Tooele					37								1	
Army	Camp Williams	25000	UT	Ulah		48			17		14		2	Y			1	M
AF	Hill AFB - Little Mountain Annex	NA	UT	Weber														NA
Army	Camp Johnson	NA	VT	Chittenden								28	2				NA	
Army	Ethan Allen Firing Range	NA	VT	Chittenden								28					NA	
Army	Fort A. P. Hill	76000	VA	Caroline													NA	
Navy	Ocean NAS - Fentress	2406	VA	Chesapeake		43	36		12	23			2	Y		203		L
Army	Fort Pickett	45160	VA	Dinwiddie													3	
Army	Fort Belvoir	8656	VA	Fairfax	14	6	9	11		42		4	2	Y		31		H
AF	Langley AFB	3152	VA	Hampton		5	54	4					1		183		151	
Army	Fort Monroe	1070	VA	Hampton		5	54	4					2		183		151	
Navy	Naval SWC - Dahlgren	4321	VA	King George					19	24						200		
Army	Fort Eustis	8229	VA	Newport News		7		5					2					
Navy	Norfolk Naval Station	3400	VA	Norfolk		2	23	2					2		204	6	168	

Dept.	Property	Area (acres)	ST	Resident Cnty	Community Size				Economic Strength				Proximity UA Proximity Class	At Risk	DOD			At Risk Level
					Population		UrDvlp Cnty %	Population Growth % 90-97	Population Growth % 85-90	Earn. Per Capita Growth % 90-97	\$ 1997	% Of Templ			Change 85-97	Per DOD Area		
					Total 1997	Dnsity % 1990												
																	City(20ml) 1990	
Army	Crane Island FISC Fuel Depot	NA	VA	Portsmouth	4	20	3					2		177	195	164		
Navy	Norfolk Naval Shipyard	801	VA	Portsmouth	4	26	3						1		177	195	164	
Army	Fort Lee	5574	VA	Prince George									2		200			
MC	Quantico MC Base	60483	VA	Prince William	32								3	Y		204		L
Army	Radford AAP	3450	VA	Pulaski													18	
Army	Radford AAP - New River Unit	3450	VA	Pulaski													18	
Army	Fort Story	1451	VA	Virginia Beach	13	37							2	Y	179	24		M
Navy	Little Cr. NAB	2120	VA	Virginia Beach	13	28							2	Y	179	24		M
Navy	Oceana NAS	24534	VA	Virginia Beach	13	36							1	Y	179	24		M
Navy	Dam Neck Trng Cntr	1303	VA	Virginia Beach	13	43							1	Y	179	24		M
Navy	Camp Peary	9274	VA	York	38				9				3	Y		181		L
Navy	Yorktown NWS	13248	VA	York	38				9				2	Y		181		L
Navy	Yorktown NWS - Cheatham	1579	VA	York	38				9				2	Y		181		L
Navy	Whitbey Island NAS	NA	WA	Island											202	202		
Navy	Whitbey Isl NAS - Ault Field	71059	WA	Island											202	202		
Navy	Indian Island Nvl Magazine	2700	WA	Jefferson					18	26						172	30	
Navy	Bangor Nvl Sub. Base	6527	WA	Kitsap	40	50			24	32			2	Y	189	213	147	L
Navy	Puget Sound Nvl Shipyard	1577	WA	Kitsap	40	45			24	32			1	Y	189	213	147	L
AF	McChord AFB	4616	WA	Pierce	27								2			8		
Army	Fort Lewis	86176	WA	Pierce	27								2			8		
AF	Fairchild AFB	4551	WA	Spokane														
Army	Yakima Firing Center	323400	WA	Yakima									3				4	
Army	Volk Field CRTC	2336	WI	Juneau													29	
Army	Fort McCoy	127730	WI	Monroe													3	
AF	Francis E Warren AFB	5866	WY	Laramie									2					

County of Residence Level Source Data and Factor Development

Table A8. Population indicators and factors.

Dept.	Property	ST	Resident County	County Area sq mi	Total Population			City Popn - 20 mi	UrDvlp Cnty sq mi	Dnsty 1997	UrDvlp Cnty %	Total Popn Growth Rate	
					1997	1990	1985					90-97	85-90
Navy	WFNAS - Barin Fld	AL	Baldwin	1658	128820	98920	89401	52828	1.5	77.7	0.09	30.23	10.65
Navy	WFNAS - Silverhill Fld	AL	Baldwin	1658	128820	98920	89401	207568	1.5	77.7	0.09	30.23	10.65
Navy	WFNAS - Summerdale Fld	AL	Baldwin	1658	128820	98920	89401	11290	1.5	77.7	0.09	30.23	10.65
Army	Anniston Army Depot	AL	Calhoun	604	117227	116122	118644	108742	21.3	194.0	3.52	0.95	-2.13
Army	Fort Rucker	AL	Dale	565	49107	49596	48458	86634	8.1	86.9	1.44	-0.99	2.35
Army	Redstone Arsenal	AL	Madison	828	272584	240144	215234	251150	49.5	329.2	5.98	13.51	11.57
AF	Maxwell AFB	AL	Montgomery	794	217863	209315	203886	206693	35.5	274.5	4.48	4.08	2.66
Army	Fort Huachuca	AZ	Cochise	6262	111688	97840	91192	32983	5.0	17.8	0.08	14.15	7.29
Army	Ft Huachuca - Dry Lake	AZ	Cochise	6262	111688	97840	91192		5.0	17.8	0.08	14.15	7.29
Army	Camp Navaho	AZ	Coconino	18597	113700	97074	84431	45857	3.9	6.1	0.02	17.13	14.97
Navy	Nvl Observatory Flagstaff	AZ	Coconino	18597	113700	97074	84431	45857	3.9	6.1	0.02	17.13	14.97
Army	Buckeye NG Target Rng	AZ	Maricopa	9194	2699098	2129389	1828748	32166	212.9	293.6	2.32	26.75	16.44
AF	Luke AFB	AZ	Maricopa	9194	2699098	2129389	1828748	1252447	212.9	293.6	2.32	26.75	16.44
AF	Luke AFB - ALF 1	AZ	Maricopa	9194	2699098	2129389	1828748	252875	212.9	293.6	2.32	26.75	16.44
AF	Davis-Monthan AFB	AZ	Pima	9229	778860	668270	602647	419403	66.5	84.4	0.72	16.55	10.89
Army	Camp Florence	AZ	Pinal	5342	142932	116457	103230		7.7	26.8	0.15	22.73	12.81
AF	Rittenhouse Trng Area	AZ	Pinal	5342	142932	116457	103230	425912	7.7	26.8	0.15	22.73	12.81
AF	Barry M. Goldwater Rng	AZ	Yuma	5612	129171	107660	87572	54923	7.0	23.0	0.12	19.98	22.94
MC	Yuma MC Air Station	AZ	Yuma	5612	129171	107660	87572	54923	7.0	23.0	0.12	19.98	22.94
Army	Yuma Proving Ground	AZ	Yuma	5612	129171	107660	87572	54923	7.0	23.0	0.12	19.98	22.94
Army	Pine Bluff Arsenal	AR	Jefferson	905	82185	85380	88011	57140	18.5	90.9	2.05	-3.74	-2.99
Army	Camp Robinson	AR	Pulaski	798	350142	349781	350003	312011	69.6	438.7	8.72	0.10	-0.06
AF	Little Rock AFB	AR	Pulaski	798	350142	349781	350003	285530	69.6	438.7	8.72	0.10	-0.06
Army	Fort Chaffee	AR	Sebastian	538	106171	99576	98191	87777	31.3	197.3	5.82	6.62	1.41
Army	Camp Parks	CA	Alameda	744	1374804	1307043	1197401	1275753	120.6	1847.4	16.24	5.18	9.16
Navy	Concord Ocean Terminal	CA	Contra Costa	745	899107	809223	711446	1048704	113.2	1206.1	15.27	11.11	13.74
Navy	Seal Bch NWS - Concord	CA	Contra Costa	745	899107	809223	711446	1492794	113.2	1206.1	15.27	11.11	13.74
Navy	Chocolate Mnts Rng	CA	Imperial	4475	142265	110934	99199	18923	5.4	31.8	0.12	28.24	11.83
Navy	EI Centro Bombing Rng	CA	Imperial	4475	142265	110934	99199	68940	5.4	31.8	0.12	28.24	11.83
Navy	EI Centro NAF	CA	Imperial	4475	142265	110934	99199	68940	5.4	31.8	0.12	28.24	11.83
Navy	China Lake NAWS	CA	Kern	8187	624983	549212	474243	27725	44.1	76.3	0.54	13.80	15.81
AF	Edwards AFB	CA	Kern	8187	624983	549212	474243	166133	44.1	76.3	0.54	13.80	15.81
Navy	Lemoore NAS	CA	Kings	1381	114440	101799	85205	44519	5.4	82.9	0.39	12.42	19.48
Army	Sierra Army Depot	CA	Lassen	4696	33415	27658	24128		3.9	7.1	0.08	20.81	14.63
Navy	NI NAS - San Clemente Isl	CA	Los Angeles	4116	9116506	8874994	8182906		959.4	2215.0	23.34	2.72	8.46
Army	Fort Hunter-Liggett	CA	Monterey	3323	358360	356952	328102	18583	14.3	107.8	0.43	0.39	8.79
Army	Presidio of Monterey	CA	Monterey	3323	358360	356952	328102	222185	14.3	107.8	0.43	0.39	8.79
Navy	Seal Beach NWS	CA	Orange	796	2663561	2417557	2171930	4700062	293.7	3344.1	36.79	10.18	11.31
AF	March Air Reserve	CA	Riverside	7295	1439210	1193681	825685	1301096	95.8	197.3	1.32	20.57	44.57
MC	Barstow MC Logistics	CA	S Bernardino	20175	1608531	1437089	1072242	21472	132.9	79.7	0.66	11.93	34.03
Navy	China Lake NWC	CA	S Bernardino	20175	1608531	1437089	1072242	27725	132.9	79.7	0.66	11.93	34.03
Army	Fort Irwin	CA	S Bernardino	20175	1608531	1437089	1072242		132.9	79.7	0.66	11.93	34.03
MC	Twentynine Palms	CA	S Bernardino	20175	1608531	1437089	1072242	25522	132.9	79.7	0.66	11.93	34.03
MC	Camp Pendleton	CA	San Diego	4268	2723711	2513219	2126090	1027948	245.0	638.2	5.75	8.38	18.21
Navy	Coronado NAB	CA	San Diego	4268	2723711	2513219	2126090	1723205	245.0	638.2	5.75	8.38	18.21
Navy	Miramar MCAS	CA	San Diego	4268	2723711	2513219	2126090	2058844	245.0	638.2	5.75	8.38	18.21
Navy	NI NAS - Imp'l Beach	CA	San Diego	4268	2723711	2513219	2126090	1630891	245.0	638.2	5.75	8.38	18.21
Navy	North Island NAS	CA	San Diego	4268	2723711	2513219	2126090	1736167	245.0	638.2	5.75	8.38	18.21
Navy	San Diego Nvl Station	CA	San Diego	4268	2723711	2513219	2126090	1723205	245.0	638.2	5.75	8.38	18.21
Navy	San Diego Nvl Sub Base	CA	San Diego	4268	2723711	2513219	2126090	1736167	245.0	638.2	5.75	8.38	18.21
Navy	Seal Bch NWS - Fallbrook	CA	San Diego	4268	2723711	2513219	2126090	585381	245.0	638.2	5.75	8.38	18.21
Army	DDD SanJoaquin-Lathrop	CA	San Joaquin	1425	540247	484347	416042	501878	32.8	379.1	2.31	11.54	16.42

Dept.	Property	ST	Resident County	County Area sq mi	Total Population			City Popn - 20 mi	UrDvlp Cnty sq mi	Dnsty 1997	UrDvlp Cnty %	Total Popn Growth Rate	
					1997	1990	1985					90-97	85-90
Navy	Stockton Communicat'n	CA	San Joaquin	1425	540247	484347	416042	355522	32.8	379.1	2.31	11.54	16.42
Army	Camp Roberts	CA	S Luis Obispo	3349	231416	218129	185248	41721	14.7	69.1	0.44	6.09	17.75
AF	Vandenberg AFB	CA	Santa Barbara	2746	386524	370412	338569	124967	27.4	140.8	1.00	4.35	9.41
AF	Travis AFB	CA	Solana	805	371237	343472	271634	647623	13.9	460.9	1.73	8.08	26.45
Navy	PM NAWS - San Nicolas	CA	Ventura	1840	721806	670164	602819		45.6	392.2	2.48	7.71	11.17
Navy	Point Mugu NAWS	CA	Ventura	1840	721806	670164	602819	482711	45.6	392.2	2.48	7.71	11.17
Navy	Port Hueneme CBC	CA	Ventura	1840	721806	670164	602819	462321	45.6	392.2	2.48	7.71	11.17
AF	Beale AFB	CA	Yuba	642	60166	58640	53330	92720	7.7	93.8	1.20	2.60	9.96
Army	Buckley ANGB	CO	Arapahoe	799	462958	393838	369021	1349383	43.7	579.3	5.46	17.55	6.73
Army	Fort Carson	CO	El Paso	2116	479721	397293	370274	427449	37.9	226.7	1.79	20.75	7.30
AF	NORAD COC Cntr	CO	El Paso	2116	479721	397293	370274	316122	37.9	226.7	1.79	20.75	7.30
AF	Peterson AFB	CO	El Paso	2116	479721	397293	370274	316122	37.9	226.7	1.79	20.75	7.30
AF	USAF Academy	CO	El Paso	2116	479721	397293	370274	316122	37.9	226.7	1.79	20.75	7.30
AF	USAF - Farish Rec Area	CO	El Paso	2116	479721	397293	370274	292300	37.9	226.7	1.79	20.75	7.30
Army	Fort Carson - Pinon Canyon	CO	Las Animas	4730	14490	13752	14416		3.5	3.1	0.07	5.37	-4.61
Army	Pueblo Ordnance Depot	CO	Pueblo	2423	132610	123056	123851	98640	20.5	54.7	0.85	7.76	-0.64
Navy	New London Sub Base	CT	New London	706	248838	255153	248201	92421	12.0	352.3	1.70	-2.47	2.80
Navy	Anacostia Nvl Station	DC	Washington	66	529895	603768	634549	2500745	58.7	8021.1	87.86	-12.24	-4.85
AF	Bolling AFB	DC	Washington	66	529895	603768	634549	2448800	58.7	8021.1	87.86	-12.24	-4.85
Navy	Nvl Research Lab. DC	DC	Washington	66	529895	603768	634549	2429362	58.7	8021.1	87.86	-12.24	-4.85
AF	Dover AFB	DE	Kent	608	122738	111641	102818	27630	9.7	201.9	1.59	9.94	8.58
Navy	Panama City NCSS	FL	Bay	738	146376	127320	113707	46631	20.1	198.4	2.72	14.97	11.97
AF	Tyndall AFB	FL	Bay	738	146376	127320	113707	46631	20.1	198.4	2.72	14.97	11.97
AF	Cape Canaveral AFS	FL	Brevard	1017	459537	403136	336935	128397	13.9	451.9	1.37	13.99	19.65
AF	Patrick AFB	FL	Brevard	1017	459537	403136	336935	211281	13.9	451.9	1.37	13.99	19.65
Navy	Stevens Lake Rng	FL	Clay	652	133649	106793	87109		5.8	205.0	0.89	25.15	22.60
AF	Homestead ARB	FL	Dade	1999	2128987	1942813	1776908	541929	186.6	1065.0	9.31	9.58	9.34
Navy	Jacksonville NAS	FL	Duval	776	729629	676833	619897	709448	120.6	940.7	15.52	7.80	9.18
Navy	Mayport Naval Station	FL	Duval	776	729629	676833	619897	664705	120.6	940.7	15.52	7.80	9.18
Navy	Corry Station Tmg Center	FL	Escambia	664	281529	263314	253383	197387	54.1	423.9	8.14	6.92	3.92
Navy	Kings OLF	FL	Escambia	664	281529	263314	253383	197387	54.1	423.9	8.14	6.92	3.92
Navy	Pensacola NAS	FL	Escambia	664	281529	263314	253383	197387	54.1	423.9	8.14	6.92	3.92
Navy	WFNAS - Saufley Fld	FL	Escambia	664	281529	263314	253383	197387	54.1	423.9	8.14	6.92	3.92
AF	MacDill AFB	FL	Hillsborough	1062	908928	835958	756424	1058504	114.8	855.5	10.80	8.73	10.51
Navy	Pinecastle Target Rng	FL	Marion	1671	235855	196890	159464	12967	8.5	141.1	0.51	19.79	23.47
Navy	Key West NAS	FL	Monroe	864	81169	78241	70522	24832	1.5	93.9	0.18	3.74	10.95
AF	Eglin AFB	FL	Okaloosa	914	167709	144475	129469	195482	11.2	183.5	1.23	16.08	11.59
AF	Avon Park Rng	FL	Polk	2018	446425	407233	363802		56.0	221.2	2.77	9.62	11.94
Navy	Rodman Bombing Rng	FL	Putnam	825	70067	65339	58359	10201	5.4	84.9	0.66	7.24	11.96
Navy	WFNAS - Choctaw Fld	FL	Santa Rosa	1045	113357	82170	67360	163504	0.8	108.5	0.07	37.95	21.99
Navy	WFNAS - Harold Fld	FL	Santa Rosa	1045	113357	82170	67360		0.8	108.5	0.07	37.95	21.99
Navy	WFNAS - Holley Fld	FL	Santa Rosa	1045	113357	82170	67360	124882	0.8	108.5	0.07	37.95	21.99
Navy	WFNAS - Santa Rosa Fld	FL	Santa Rosa	1045	113357	82170	67360	84466	0.8	108.5	0.07	37.95	21.99
Navy	WFNAS - Spencer Fld	FL	Santa Rosa	1045	113357	82170	67360	197387	0.8	108.5	0.07	37.95	21.99
Navy	Whiting Field NAS	FL	Santa Rosa	1045	113357	82170	67360	100828	0.8	108.5	0.07	37.95	21.99
Navy	Kings Bay Sub Support	GA	Camden	628	45164	30795	18530		0.0	72.0	0.00	46.66	66.19
Army	Fort Benning	GA	Chattahoochee	250	16589	16798	19408	203993	4.3	66.3	1.70	-1.24	-13.45
Army	Fort McPherson- Fort Gillem	GA	Clayton	146	204725	182403	164026	716697	34.8	1407.0	23.87	12.24	11.20
AF	Dobbins AFB	GA	Cobb	353	551314	450820	372905	886607	103.2	1563.9	29.21	22.29	20.89
MC	MC Logistics - Albany	GA	Dougherty	339	95931	96270	101917	78122	21.6	283.1	6.39	-0.35	-5.54
Army	Fort McPherson	GA	Fulton	552	725851	649251	631793	878008	165.0	1315.8	30.09	11.80	2.76
AF	Robins AFB	GA	Houston	367	103847	89658	82850	150338	12.0	283.0	3.27	15.83	8.22
Army	Fort Stewart	GA	Liberty	522	60107	52841	45577	170393	2.7	115.2	0.52	13.75	15.94
AF	Moody AFB	GA	Lowndes	516	84721	76266	72573	39806	16.2	164.3	3.15	11.09	5.09
MC	Townsend Rng	GA	McIntosh	450	9905	8613	8402	21603	1.2	22.0	0.26	15.00	2.51
Army	Fort Gordon	GA	Richmond	337	191762	190429	189698	191069	48.7	568.4	14.48	0.70	0.39
AF	Boise Air Terminal	ID	Ada	1047	267283	207518	189811	154103	19.3	255.3	1.85	28.80	9.33
AF	Mountain Home AFB	ID	Elmore	3100	24659	21228	21764		2.3	8.0	0.08	16.16	-2.46

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AF	Mtn Home Small Arms Rng	ID	Elmore	3100	24659	21228	21764		2.3	8.0	0.08	16.16	-2.46
Army	Pershing II Launch Site	ID	Owyhee	7715	10120	8417	8445		0.4	1.3	0.01	20.23	-0.33
AF	Saylor Creek Trng Rng	ID	Owyhee	7715	10120	8417	8445		0.4	1.3	0.01	20.23	-0.33
Navy	Great Lakes Trng Cntr	IL	Lake	460	594698	519850	465821	1036057	64.5	1293.6	14.11	14.40	11.60
Army	CM Price Support Cntr	IL	Madison	726	258899	249739	246494	1188721	46.8	356.8	6.45	3.67	1.32
Army	Rock Island Arsenal	IL	Rock Island	440	147916	148620	158931	227366	41.0	336.5	9.32	-0.47	-6.49
AF	Scott AFB	IL	St. Clair	665	263886	262751	265155	201590	37.1	396.8	5.60	0.43	-0.91
Army	Camp Atterbury	IN	Bartholomew	399	68888	63834	63398	113563	9.7	172.5	2.43	7.92	0.69
Army	Indiana AAP	IN	Clark	365	93227	87704	88686	531681	16.2	255.5	4.47	6.30	-1.11
Navy	Crane NSW Cntr	IN	Martin	338	10559	10365	10788	85288	0.8	31.2	0.23	1.87	-3.92
AF	Grissom ARB	IN	Miami	365	33227	36873	38103	86744	3.5	91.1	0.95	-9.89	-3.23
Army	Newport AAP	IN	Vermillion	258	16973	16758	17655		2.3	65.9	0.90	1.28	-5.08
Army	Iowa AAP	IA	Des Moines	422	42108	42645	43850	38826	6.2	99.8	1.47	-1.26	-2.75
Army	Camp Dodge	IA	Polk	595	356132	328348	308349	266871	60.7	598.6	10.22	8.46	6.49
Army	Fort Riley	KS	Geary/Riley	412	25171	30449	31884	58316	5.8	61.1	1.42	-17.33	-4.50
Army	Sunflower AAP	KS	Johnson	473	418683	357233	303129	517244	52.2	885.8	11.05	17.20	17.85
Army	Kansas AAP	KS	Labette	651	23090	23614	24915	11924	5.0	35.4	0.77	-2.22	-5.22
Army	Fort Leavenworth	KS	Leavenworth	458	70036	64695	60109	198918	12.4	152.9	2.71	8.26	7.63
AF	Smoky Hill ANG Rng	KS	Saline	746	51488	49367	49618	42303	8.5	69.0	1.14	4.30	-0.51
AF	McConnell AFB	KS	Sedgwick	1018	439007	404610	383469	318710	99.7	431.5	9.80	8.50	5.51
Army	Fort Campbell	KY	Christian	708	73308	68807	70492	105303	6.6	103.6	0.92	6.54	-2.39
Army	Fort Knox	KY	Hardin	635	90783	89444	87625	491624	8.5	143.0	1.34	1.50	2.08
Army	Blue Grass Army Depot	KY	Madison	437	65465	57678	55063	36954	3.1	149.8	0.71	13.50	4.75
AF	Barksdale AFB	LA	Bossier	874	92953	85856	88351	264907	6.6	106.4	0.75	8.27	-2.82
Navy	New Orleans NAS	LA	Plaquemines	1114	26070	25514	26625	844358	0.0	23.4	0.00	2.18	-4.17
Army	Fort Polk	LA	Vernon	1357	51829	62065	62256		3.1	38.2	0.23	-16.49	-0.31
Army	Louisiana AAP	LA	Webster	615	42626	41901	44469	264907	6.6	69.3	1.07	1.73	-5.77
Navy	Brunswick NAS	ME	Cumberland	969	251368	243652	229985	78749	15.5	259.5	1.60	3.17	5.94
Navy	US Naval Radio Station	ME	Washington	2697	35852	35423	34075		1.9	13.3	0.07	1.21	3.96
Army	Fort Meade	MD	Anne Arundel	440	470234	428804	396028	2912740	49.1	1068.0	11.14	9.66	8.28
Navy	USN Academy	MD	Anne Arundel	440	470234	428804	396028	440589	49.1	1068.0	11.14	9.66	8.28
Navy	Solomon's NRC	MD	Calvert	238	69327	51976	40101		0.0	291.7	0.00	33.38	29.61
Navy	Naval SWC- Indian Hd	MD	Charles	457	115233	101805	84585	667024	5.4	252.4	1.19	13.19	20.36
Navy	Blood Isl Rng-Little Cr Fld	MD	Dorchester	534	29847	30243	29855		1.9	55.9	0.36	-1.31	1.30
Army	Fort Detrick	MD	Frederick	665	183099	151309	128502	116738	7.7	275.2	1.17	21.01	17.75
Army	Aberdeen Proving Ground	MD	Harford	441	212339	183759	154338	1133322	14.7	481.4	3.34	15.55	19.06
AF	Andrews AFB	MD	Prince Georges	499	770786	731372	683487	2119735	124.0	1544.3	24.96	5.39	7.01
Navy	Patuxent River NAS	MD	St Marys	372	85304	76427	64618		1.2	229.3	0.31	11.62	18.28
Navy	PR NAS - Webster Field	MD	St Marys	372	85304	76427	64618		1.2	229.3	0.31	11.62	18.28
AF	Otis ARNG/Camp Edwards	MA	Barnstable	431	204978	187169	166578	124400	15.8	475.8	3.69	9.51	12.36
AF	Westover AFB	MA	Hampden	642	440472	456411	441973	398166	82.3	686.0	12.86	-3.49	3.27
AF	Hanscom AFB	MA	Middlesex	850	1418060	1398249	1397037	2252310	200.2	1667.8	23.56	1.42	0.09
Army	Natick Soldier Center	MA	Middlesex	850	1418060	1398249	1397037	1347123	200.2	1667.8	23.56	1.42	0.09
Army	Devens Res. Trng Area	MA	Worcester	1572	725377	710420	662239	635085	64.1	461.5	4.10	2.11	7.28
Army	Camp Grayling	MI	Crawford	566	13913	12320	10628		1.5	24.6	0.28	12.93	15.92
AF	Selfridge ANGB	MI	Macomb	481	783240	718490	693630	2089704	129.1	1628.4	26.94	9.01	3.58
Navy	Construction Battalion Cntr	MS	Harrison	592	176257	165229	168762	133232	12.4	297.6	2.09	6.67	-2.09
Navy	Meridian NAS - Williams Fld	MS	Kemper	754	10421	10330	10375		0.0	13.8	0.00	0.88	-0.43
Navy	Meridian NAS	MS	Lauderdale	705	76824	75511	78371	41036	5.4	109.0	0.77	1.74	-3.65
Navy	Alpha NAAS	MS	Noxubee	699	12377	12614	12926		2.7	17.7	0.39	-1.88	-2.41
Navy	Multipurpose Target Rng	MS	Noxubee	699	12377	12614	12926		2.7	17.7	0.39	-1.88	-2.41
Army	Lake City AAP	MO	Jackson	622	653745	633453	633482	746642	140.3	1050.5	22.53	3.20	0.00
AF	Whiteman AFB	MO	Johnson	825	47192	42634	38833	35044	3.1	57.2	0.38	10.69	9.79
Army	Fort Leonard Wood	MO	Pulaski	543	38175	41763	40660		8.9	70.3	1.64	-8.59	2.71
AF	Malmstrom AFB	MT	Cascade	2726	79039	77722	79591	55097	18.5	29.0	0.68	1.69	-2.35
Army	Fort William H Harrison	MT	Lewis & Clark	3495	53319	47556	46912	24569	5.4	15.3	0.16	12.12	1.37
AF	Offutt AFB	NE	Sarpy	239	118631	103047	94818	431464	8.9	495.6	3.73	15.12	8.68

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Army	Mead ARNG	NE	Saunders	763	19167	18338	18431	23680	1.9	25.1	0.25	4.52	-0.50
Navy	Fallon NAS	NV	Churchill	4996	22664	18028	15029		0.8	4.5	0.02	25.72	19.95
Navy	Fallon NAS - Bravo 16	NV	Churchill	4996	22664	18028	15029		0.8	4.5	0.02	25.72	19.95
Navy	Fallon NAS - Bravo 17	NV	Churchill	4996	22664	18028	15029		0.8	4.5	0.02	25.72	19.95
Navy	Fallon NAS - Bravo 19	NV	Churchill	4996	22664	18028	15029		0.8	4.5	0.02	25.72	19.95
Navy	Fallon NAS - Bravo 20	NV	Churchill	4996	22664	18028	15029		0.8	4.5	0.02	25.72	19.95
AF	Nellis AFB	NV	Clark	8088	1106900	754622	561081	689733	72.6	136.9	0.90	46.68	34.49
AF	Nellis AFB - Indian Sprngs	NV	Clark	8088	1106900	754622	561081		72.6	136.9	0.90	46.68	34.49
AF	Nellis AFB Sm Arms Rng	NV	Clark	8088	1106900	754622	561081	677166	72.6	136.9	0.90	46.68	34.49
Navy	Hawthorne Army Depot	NV	Mineral	3848	5736	6448	6369		1.9	1.5	0.05	-11.04	1.24
AF	Nellis Air Force Rng	NV	Nye	18260	27137	18043	14706		0.0	1.5	0.00	50.40	22.69
Army	Fort Dix	NJ	Burlington	831	418459	396208	376097	557527	70.7	503.5	8.55	5.62	5.35
AF	Mc Guire AFB	NJ	Burlington	831	418459	396208	376097	359022	70.7	503.5	8.55	5.62	5.35
Navy	Earle NWS - Mainside	NJ	Monmouth	457	596987	554111	528986	494142	73.0	1305.9	16.02	7.74	4.75
Navy	Earle NWS - Waterfront	NJ	Monmouth	457	596987	554111	528986	8155191	73.0	1305.9	16.02	7.74	4.75
Army	Fort Monmouth	NJ	Monmouth	457	596987	554111	528986	338772	73.0	1305.9	16.02	7.74	4.75
Army	Picatinny Arsenal	NJ	Morris	482	454490	421712	419190	850436	63.0	943.6	13.09	7.77	0.60
Navy	Lakehurst NASC	NJ	Ocean	625	482421	434480	387772	206026	56.8	772.2	9.12	11.03	12.05
AF	Kirtland AFB	NM	Bernalillo	1163	525586	481991	452555	465449	88.1	452.1	7.58	9.04	6.50
AF	Cannon AFB	NM	Curry	1423	46649	42281	42890	41644	17.4	32.8	1.22	10.33	-1.42
Army	White Sands Missile Rng	NM	Dona Ana	3784	166301	136523	116321	605064	13.5	44.0	0.36	21.81	17.37
Army	Fort Bliss McGregor Rng	NM	Otero	6625	55451	51792	50312	542938	1.9	8.4	0.03	7.06	2.94
AF	Holloman AFB	NM	Otero	6625	55451	51792	50312	27596	1.9	8.4	0.03	7.06	2.94
AF	Melrose Rng	NM	Roosevelt	2472	18399	16764	16623		5.0	7.4	0.20	9.75	0.85
Army	Fort Drum	NY	Jefferson	1249	112335	111460	88954	29429	9.3	90.0	0.74	0.79	25.30
AF	Hancock Field	NY	Onondaga	810	460898	469841	467054	176126	59.1	569.3	7.34	-1.90	0.60
MC	MC Reserve Trng Cntr	NY	Onondaga	810	460898	469841	467054	176126	59.1	569.3	7.34	-1.90	0.60
Army	USMA West Point	NY	Orange	861	326265	308793	279432	317957	17.0	378.8	1.98	5.66	10.51
Army	Seneca Army Depot	NY	Seneca	374	32187	33694	33347	45401	3.9	86.1	1.04	-4.47	1.04
Army	Ocean Terminal Sunny Pt	NC	Brunswick	836	65827	51265	44808	55530	1.5	78.7	0.19	28.41	14.41
MC	Cherry Point Rng BT-9	NC	Carteret	488	59560	52854	48320		3.9	122.0	0.79	12.69	9.38
MC	ChPt MCAS- Bogue Fld	NC	Carteret	488	59560	52854	48320	20268	3.9	122.0	0.79	12.69	9.38
MC	Cherry Point MCAS	NC	Craven	689	87752	81891	79439	37631	10.8	127.3	1.57	7.16	3.09
Army	Fort Bragg	NC	Cumberland	671	283975	275416	261674	90170	56.8	423.1	8.45	3.11	5.25
AF	Pope AFB	NC	Cumberland	671	283975	275416	261674	75695	56.8	423.1	8.45	3.11	5.25
AF	Cherry Pt Dare Cty Rng	NC	Dare	364	27935	22936	17027		1.5	76.7	0.43	21.80	34.70
Navy	ChPt MCAS-Oak Grove Fld	NC	Jones	474	9469	9421	9384	47376	0.8	20.0	0.16	0.51	0.39
MC	Camp LeJeune	NC	Onslow	764	143263	149861	133240	30013	20.9	187.5	2.73	-4.40	12.47
Army	Fort Bragg - Camp Mackall	NC	Richmond	474	46024	44600	45103	11643	10.4	97.0	2.20	3.19	-1.12
AF	Seymour Johnson AFB	NC	Wayne	554	112022	104851	101193	40709	21.3	202.0	3.83	6.84	3.61
AF	Grand Forks AFB	ND	Grand Forks	1445	69325	70532	70272	49425	14.7	48.0	1.02	-1.71	0.37
AF	Minot AFB	ND	Ward	2044	59033	57762	61674	34544	3.5	28.9	0.17	2.20	-6.34
Navy	DSC - Columbus	OH	Franklin	557	1017393	964720	902756	857278	132.5	1827.3	23.85	5.46	6.86
AF	Wright-Patterson AFB	OH	Greene	404	146935	137196	129898	585709	30.5	363.7	7.55	7.10	5.62
Army	Ravenna AAP	OH	Portage	490	150454	142759	137932	608697	8.9	307.3	1.82	5.39	3.50
Army	Fort Sill	OK	Comanche	1086	113947	111399	120211	102293	18.2	104.9	1.68	2.29	-7.33
AF	Vance AFB	OK	Garfield	1045	56887	56648	64151	45309	15.5	54.4	1.48	0.42	-11.70
AF	Altus AFB	OK	Jackson	816	28621	28621	31313	21910	7.0	35.1	0.85	0.00	-8.60
AF	Tinker AFB	OK	Oklahoma	702	631053	599905	620966	718514	114.0	899.1	16.28	5.19	-3.39
Army	McAlester AAP	OK	Pittsburg	1379	43134	40963	42288	16370	16.2	31.3	1.18	5.30	-3.13
Army	Camp Rilea	OR	Clatsop	817	35431	33424	32452	10069	5.8	43.4	0.71	6.00	3.00
AF	Kingsley Field AGS	OR	Klamath	6123	62819	57943	57476	36328	12.0	10.3	0.20	8.42	0.81
Navy	WINAS - Boardman Rng	OR	Morrow	2030	9566	7613	8090	10040	0.8	4.7	0.04	25.65	-5.90
Army	Umatilla Chemical Depot	OR	Umatilla	3288	64385	59355	60024	10040	9.7	19.6	0.30	8.47	-1.11
Army	Site R - Raven Rock	PA	Adams	529	85612	78729	71043	52092	3.1	161.9	0.59	8.74	10.82
Army	DDD Susquehanna	PA	Cumberland	565	207801	195869	185128	138624	28.6	368.0	5.08	6.09	5.80
Navy	Inv. Cntrl - Mechanicsburg	PA	Cumberland	565	207801	195869	185128	96432	28.6	368.0	5.08	6.09	5.80
Army	Fort Indiantown Gap	PA	Dauphin	535	245713	238434	233725	102813	29.8	459.0	5.58	3.05	2.01

Dept.	Property	ST	Resident County	County Area sq mi	Total Population			City Popn - 20 mi	UrDvlp Cnty sq mi	Dnsty 1997	UrDvlp Cnty %	Total Popn Growth Rate	
					1997	1990	1985					90-97	85-90
Army	Letterkenny Army Depot	PA	Franklin	760	127462	121493	116882	16647	5.4	167.7	0.71	4.91	3.95
Navy	Willow Grove NAS	PA	Montgomery	482	713135	679504	654618	2252394	128.7	1478.0	26.62	4.95	3.80
Navy	Newport Trng Cntr	RI	Newport	88	82962	87461	85347	688924	3.9	946.3	4.46	-5.14	2.48
MC	Beaufort MCAS	SC	Beaufort	577	106739	87077	77295	23694	1.9	184.9	0.34	22.58	12.66
MC	Blt MCAS - Laurel Bay Hous- ing	SC	Beaufort	577	106739	87077	77295	23694	1.9	184.9	0.34	22.58	12.66
MC	Parris Isl Recruit Depot	SC	Beaufort	577	106739	87077	77295	23694	1.9	184.9	0.34	22.58	12.66
Navy	Charleston NWS	SC	Berkeley	1213	134232	129520	114451	254667	5.4	110.6	0.45	3.64	13.17
AF	Charleston AFB	SC	Charleston	979	313478	295757	283942	254667	38.3	320.2	3.91	5.99	4.16
Army	Fort Jackson	SC	Richland	767	303742	287206	278114	226279	53.7	396.1	6.99	5.76	3.27
AF	Shaw AFB	SC	Sumter	675	106616	101456	96362	41943	10.0	157.9	1.49	5.09	5.29
AF	Ellsworth AFB	SD	Pennington	2834	87071	81691	76825	54523	5.0	30.7	0.18	6.59	6.33
Army	Milan Arsenal	TN	Gobson	605	48083	46397	48111	48949	5.4	79.5	0.89	3.63	-3.56
Navy	Memphis NAS	TN	Shelby	790	865318	827898	789903	688085	140.7	1096.0	17.75	4.52	4.81
Army	Camp Swift NG Facility	TX	Bastrop	900	48830	38197	34545	11472	2.7	54.2	0.30	27.84	10.57
Army	Fort Hood	TX	Bell	1083	221816	191420	179511	170532	32.5	204.8	3.00	15.88	6.63
AF	Brooks AFB	TX	Bexar	1255	1328202	1187591	1122089	969568	160.0	1058.6	12.77	11.84	5.84
Army	Camp Bullis	TX	Bexar	1255	1328202	1187591	1122089	969568	160.0	1058.6	12.77	11.84	5.84
Army	Fort Sam Houston	TX	Bexar	1255	1328202	1187591	1122089	969568	160.0	1058.6	12.77	11.84	5.84
AF	Lackland AFB	TX	Bexar	1255	1328202	1187591	1122089	945956	160.0	1058.6	12.77	11.84	5.84
AF	Randolph AFB	TX	Bexar	1255	1328202	1187591	1122089	1015755	160.0	1058.6	12.77	11.84	5.84
Army	Red River Army Depot	TX	Bowie	938	83803	81849	80607	54287	15.8	89.3	1.69	2.39	1.54
Army	Fort Bliss	TX	El Paso	994	690290	595939	538809	538337	44.4	694.8	4.47	15.83	10.60
Army	Longhorn Ordnance AAP	TX	Harrison	928	59561	57422	56876	23682	8.1	64.2	0.87	3.73	0.96
Navy	Kingsville NAS	TX	Kleberg	873	30172	30074	33998	25276	4.6	34.5	0.53	0.33	-11.54
Navy	Corpus Christi NAS	TX	Nueces	855	316498	291703	291727	269677	45.6	370.0	5.33	8.50	-0.01
Army	Fort Wolters	TX	Parker	914	78654	65263	54281	29674	4.3	86.0	0.47	20.52	20.23
AF	Carswell Air Reserve	TX	Tarrant	899	1326044	1176328	1043207	1027427	168.9	1474.8	18.76	12.73	12.76
AF	Dyess AFB	TX	Taylor	930	121017	119533	122466	106654	13.9	130.1	1.49	1.24	-2.39
AF	Goodfellow AFB	TX	Tom Green	1563	102344	98265	96368	84474	16.6	65.5	1.06	4.15	1.97
AF	Laughlin AFB	TX	Val Verde	3263	42989	38566	39365	30705	3.1	13.2	0.10	11.47	-2.03
AF	Sheppard AFB	TX	Wichita	622	128958	122199	126136	106404	16.6	207.2	2.68	5.53	-3.12
AF	Hill AFB	UT	Davis	636	226974	188899	169887	237624	17.0	356.6	2.67	20.16	11.19
Army	Green River Launch Cmplx	UT	Grand	3661	8103	6617	7391		1.9	2.2	0.05	22.46	-10.47
Army	Deseret Chemical Depot	UT	Tooele	7263	31465	26677	27432	13887	6.2	4.3	0.09	17.95	-2.75
Army	Dugway Proving Grounds	UT	Tooele	7263	31465	26677	27432		6.2	4.3	0.09	17.95	-2.75
Army	Tooele Army Depot	UT	Tooele	7263	31465	26677	27432	213439	6.2	4.3	0.09	17.95	-2.75
AF	Utah Test Rng (North)	UT	Tooele	7263	31465	26677	27432		6.2	4.3	0.09	17.95	-2.75
AF	Utah Test Rng (South)	UT	Tooele	7263	31465	26677	27432		6.2	4.3	0.09	17.95	-2.75
Army	Camp Williams	UT	Utah	2170	329333	264634	244529	715675	27.4	151.8	1.27	24.45	8.22
AF	Hill AFB - Little Mtn Annex	UT	Weber	660	182403	158681	156087	175504	31.3	276.5	4.75	14.95	1.66
Army	Camp Johnson	VT	Chittenden	618	141558	132113	122341	73191	3.9	229.1	0.63	7.15	7.99
Army	Ethan Allen Firing Rng	VT	Chittenden	618	141558	132113	122341	60183	3.9	229.1	0.63	7.15	7.99
Army	Fort A. P. Hill	VA	Caroline	537	21690	19345	18223	19027	0.0	40.4	0.00	12.12	6.16
Navy	Oceana NAS - Fentress	VA	Chesapeake	340	195924	153471	128814	910181	10.4	576.7	3.09	27.66	19.14
Army	Fort Pickett	VA	Dinwiddie	506	76004	75576	77178		18.5	150.2	3.44	0.57	-2.08
Army	Fort Belvoir	VA	Fairfax	397	945392	850609	744202	2154444	103.2	2381.4	25.00	11.14	14.30
Army	Fort Monroe	VA	Hampton	51	138549	134059	126607	679979	30.5	2727.5	59.85	3.35	5.89
AF	Langley AFB	VA	Hampton	51	138549	134059	126607	679979	30.5	2727.5	59.85	3.35	5.89
Navy	Naval SWC - Dahlgren	VA	King George	178	16913	13623	11438	28717	0.0	95.1	0.00	24.15	19.10
Army	Fort Eustis	VA	Newport News	75	175083	172260	156924	430280	32.5	2329.3	43.52	1.64	9.77
Navy	Norfolk Naval Station	VA	Norfolk	48	230018	261164	266585	1225024	39.8	4760.9	81.75	-11.93	-2.03
Army	Craney Isl Fuel Depot	VA	Portsmouth	35	99451	103772	106562	1277165	23.6	2830.7	64.89	-4.16	-2.62
Navy	Norfolk Shipyard	VA	Portsmouth	35	99451	103772	106562	1096115	23.6	2830.7	64.89	-4.16	-2.62
Army	Fort Lee	VA	Prince George	279	52481	50615	50051	321266	8.9	188.2	3.10	3.69	1.13
MC	Quantico MC Base	VA	Prince William	335	297814	252329	199527	558380	15.8	888.2	4.57	18.03	26.46
Army	Radford AAP	VA	Pulaski	333	34344	34604	35233	65534	3.1	103.1	0.93	-0.75	-1.79
Army	Radford AAP - New River	VA	Pulaski	333	34344	34604	35233	65534	3.1	103.1	0.93	-0.75	-1.79

Dept.	Property	ST	Resident County	County Area sq mi	Total Population			City Popn - 20 mi	UrDvlp Cnty sq mi	Dnsty 1997	UrDvlp Cnty %	Total Popn Growth Rate	
					1997	1990	1985					90-97	85-90
Navy	Dam Neck Trng Cntr	VA	Virginia Beach	267	431179	395829	321304	806274	9.3	1613.2	3.46	8.93	23.19
Army	Fort Story	VA	Virginia Beach	267	431179	395829	321304	891998	9.3	1613.2	3.46	8.93	23.19
Navy	Little Creek NAB	VA	Virginia Beach	267	431179	395829	321304	1054979	9.3	1613.2	3.46	8.93	23.19
Navy	Oceana NAS	VA	Virginia Beach	267	431179	395829	321304	910181	9.3	1613.2	3.46	8.93	23.19
Navy	Camp Peary	VA	York	108	68976	53758	47936	192580	0.8	641.3	0.60	28.31	12.15
Navy	Yorktown NWS	VA	York	108	68976	53758	47936	326373	0.8	641.3	0.60	28.31	12.15
Navy	Yorktown NWS - Cheatham	VA	York	108	68976	53758	47936	326373	0.8	641.3	0.60	28.31	12.15
Navy	Whidbey Island NAS	WA	Island	231	70472	60968	48703	46274	0.0	305.2	0.00	15.59	25.18
Navy	WINAS - Ault Field	WA	Island	231	70472	60968	48703	46274	0.0	305.2	0.00	15.59	25.18
Navy	Indian Island Magazine	WA	Jefferson	1773	25717	20687	17443	17176	0.0	14.5	0.00	24.31	18.60
Navy	Bangor Nvi Sub Base	WA	Kitsap	391	234165	192001	163546	698555	22.8	598.9	5.85	21.96	17.40
Navy	Puget Sound Shipyard	WA	Kitsap	391	234165	192001	163546	740408	22.8	598.9	5.85	21.96	17.40
Army	Fort Lewis	WA	Pierce	1652	665171	590449	528270	527973	74.6	402.7	4.53	12.66	11.77
AF	McChord AFB	WA	Pierce	1652	665171	590449	528270	571115	74.6	402.7	4.53	12.66	11.77
AF	Fairchild AFB	WA	Spokane	1789	405362	362884	355734	199522	70.3	226.5	3.95	11.71	2.01
Army	Yakima Firing Center	WA	Yakima	4288	215771	189409	181321	78426	13.5	50.3	0.32	13.92	4.46
Army	Volk Field CRTC	WI	Juneau	816	23911	21667	21162		3.5	29.3	0.43	10.36	2.39
Army	Fort McCoy	WI	Monroe	915	39311	36766	35565		5.0	43.0	0.55	6.92	3.38
AF	Francis E Warren AFB	WY	Laramie	2702	78593	73124	73102	50008	13.5	29.1	0.50	7.48	0.03

Table A9. Earnings, proximity, and DOD indicators and factors.

Dept.	Property	ST	Resident County	DOD Cnty Area acres	UA Prox. Class	Per Capita Earnings			Employment		ME % of TE 1997	Net Chng in ME 85-97	ME Per DOD Area	
						\$ 1997	\$ 1990	Grwth % 90-97	Total (TE) 1997	Military (ME)				
										1997				1985
Navy	WFNAS- Barin Fld	AL	Baldwin	650	5	22431	15516	44.57	59847	873	803	1.46	70	1.34
Navy	WFNAS- Silverhill Fld	AL	Baldwin	650	5	22431	15516	44.57	59847	873	803	1.46	70	1.34
Navy	WFNAS- Summerdale Fld	AL	Baldwin	650	5	22431	15516	44.57	59847	873	803	1.46	70	1.34
Army	Anniston Army Depot	AL	Calhoun	15279	3	18855	13815	36.48	64718	4380	8128	6.77	-3748	0.29
Army	Fort Rucker	AL	Dale	63232	4	17787	13232	34.42	25570	4264	7946	16.68	-3682	0.07
Army	Redstone Arsenal	AL	Madison	37910	2	24537	19504	25.80	181911	3480	5949	1.91	-2469	0.09
AF	Maxwell AFB	AL	Montgomery	4104	2	24103	17814	35.30	160962	6676	6696	4.15	-20	1.63
Army	Fort Huachuca	AZ	Cochise	104012	6	16532	12872	28.43	47008	6468	6526	13.76	-58	0.06
Army	Ft Huachuca - Dry Lake	AZ	Cochise	104012	6	16532	12872	28.43	47008	6468	6526	13.76	-58	0.06
Army	Camp Navaho	AZ	Coconino	28400	6	18180	13240	37.31	63045	306	341	0.49	-35	0.01
Navy	Nvl Observatry Flagstaff	AZ	Coconino	28400	6	18180	13240	37.31	63045	306	341	0.49	-35	0.01
Army	Buckeye NG Target Rng	AZ	Maricopa	5304	4	24601	18621	32.11	1651984	12824	16110	0.78	-3286	2.42
AF	Luke AFB	AZ	Maricopa	5304	2	24601	18621	32.11	1651984	12824	16110	0.78	-3286	2.42
AF	Luke AFB - ALF 1	AZ	Maricopa	5304	4	24601	18621	32.11	1651984	12824	16110	0.78	-3286	2.42
AF	Davis-Monthan AFB	AZ	Pima	10633	2	21068	15683	34.34	401611	8063	7009	2.01	1054	0.76
Army	Camp Florence	AZ	Pinal	26232	5	15372	11822	30.03	53397	366	373	0.69	-7	0.01
AF	Ritterhouse Trng Area	AZ	Pinal	26232	4	15372	11822	30.03	53397	366	373	0.69	-7	0.01
AF	Barry M. Goldwater Rng	AZ	Yuma	4136370	3	15629	12605	23.99	64713	4470	4689	6.91	-219	0.00
MC	Yuma MC Air Station	AZ	Yuma	4136370	2	15629	12605	23.99	64713	4470	4689	6.91	-219	0.00
Army	Yuma Proving Ground	AZ	Yuma	4136370	5	15629	12605	23.99	64713	4470	4689	6.91	-219	0.00
Army	Pine Bluff Arsenal	AR	Jefferson	14500	2	18109	13463	34.51	43516	550	758	1.26	-208	0.04
Army	Camp Robinson	AR	Pulaski	40210	2	25889	18302	41.45	292760	6733	9369	2.30	-2636	0.17
AF	Little Rock AFB	AR	Pulaski	40210	2	25889	18302	41.45	292760	6733	9369	2.30	-2636	0.17
Army	Fort Chaffee	AR	Sebastian	66000	2	22413	16461	36.16	86008	626	706	0.73	-80	0.01
Army	Camp Parks	CA	Alameda	2705	2	29683	22209	33.65	823544	4948	19305	0.60	-14357	1.83
Navy	Concord Ocean Terminal	CA	Contra Costa	12800	2	33869	26211	29.22	443315	2695	5109	0.61	-2414	0.21
Navy	Seal Bch NWS- Concord	CA	Contra Costa	12800	2	33869	26211	29.22	443315	2695	5109	0.61	-2414	0.21
Navy	Chocolate Mtns Rng	CA	Imperial	59000	6	14833	15576	-4.77	61598	534	570	0.87	-36	0.01
Navy	EI Centro Bombing Rng	CA	Imperial	59000	6	14833	15576	-4.77	61598	534	570	0.87	-36	0.01
Navy	EI Centro NAF	CA	Imperial	59000	6	14833	15576	-4.77	61598	534	570	0.87	-36	0.01
Navy	China Lake NAWS	CA	Kern	1403067	6	18319	16012	14.41	296638	6045	6897	2.04	-852	0.00
AF	Edwards AFB	CA	Kern	1403067	3	18319	16012	14.41	296638	6045	6897	2.04	-852	0.00
Navy	Lemoore NAS	CA	Kings/Fresno	39173	6	14559	12472	16.73	49328	5056	6681	10.25	-1625	0.13
Army	Sierra Army Depot	CA	Lassen	36000	6	14502	12586	15.22	12725	102	441	0.80	-339	0.00
Navy	NI NAS- San Clemente	CA	Los Angeles	NA	6	25719	21532	19.45	5200772	22286	39041	0.43	-16755	NA
Army	Fort Hunter-Liggett	CA	Monterey	166634	6	25747	19603	31.34	200607	5872	24250	2.93	-18378	0.04
Army	Presidio of Monterey	CA	Monterey	166634	2	25747	19603	31.34	200607	5872	24250	2.93	-18378	0.04
Navy	Seal Beach NWS	CA	Orange	16823	1	30115	25459	18.29	1670828	12958	20044	0.78	-7086	0.77
AF	March Air Reserve	CA	Riverside	6885	2	20645	18688	10.47	551556	3097	6624	0.56	-3527	0.45
MC	Barstow MC Logistics	CA	S Bernardino	1245535	6	18673	16628	12.30	631713	17640	27105	2.79	-9465	0.01
Navy	China Lake NWC	CA	S Bernardino	1245535	6	18673	16628	12.30	631713	17640	27105	2.79	-9465	0.01
Army	Fort Irwin	CA	S Bernardino	1245535	6	18673	16628	12.30	631713	17640	27105	2.79	-9465	0.01
MC	Twentynine Palms	CA	S Bernardino	1245535	6	18673	16628	12.30	631713	17640	27105	2.79	-9465	0.01
MC	Camp Pendleton	CA	San Diego	269590	2	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	Coronado NAB	CA	San Diego	269590	2	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	Miramar MCAS	CA	San Diego	269590	2	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	NI NAS-Imp'l Beach	CA	San Diego	269590	1	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	North Island NAS	CA	San Diego	269590	2	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	San Diego Nvl Station	CA	San Diego	269590	1	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	San Diego Nvl Sub Base	CA	San Diego	269590	1	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Navy	Seal Bch NWS- Fallbrook	CA	San Diego	269590	2	24965	20238	23.36	1543307	106378	142127	6.89	-35749	0.40
Army	DDD SanJoaquin-Lathrop	CA	San Joaquin	3511	3	20092	16596	21.07	237859	1176	1569	0.49	-393	0.34
Navy	Stockton Communicat'n	CA	San Joaquin	3511	2	20092	16596	21.07	237859	1176	1569	0.49	-393	0.34
Army	Camp Roberts	CA	S Luis Obispo	42784	6	22568	17622	28.07	125651	504	577	0.40	-73	0.01
AF	Vandenberg AFB	CA	Santa Barbara	98256	2	27839	22361	24.50	232351	4348	5254	1.87	-906	0.04

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AF	Travis AFB	CA	Solana	7580	2	22226	18640	19.24	146377	8866	12037	6.06	-3171	1.17
Navy	PM NAWS- San Nicolas	CA	Ventura	19680	6	26563	22002	20.73	362997	7080	9226	1.95	-2146	0.36
Navy	Point Mugu NAWS	CA	Ventura	19680	2	26563	22002	20.73	362997	7080	9226	1.95	-2146	0.36
Navy	Port Hueneme CBC	CA	Ventura	19680	2	26563	22002	20.73	362997	7080	9226	1.95	-2146	0.36
AF	Beale AFB	CA	Yuba	22944	3	15620	12686	23.13	26158	3344	4530	12.78	-1186	0.15
Army	Buckley ANGB	CO	Arapahoe	3832	2	34233	24187	41.53	340602	2302	1805	0.68	497	0.60
Army	Fort Carson	CO	El Paso	157829	2	23493	17028	37.97	309028	29065	34237	9.41	-5172	0.18
AF	NORAD COC Cntr	CO	El Paso	157829	2	23493	17028	37.97	309028	29065	34237	9.41	-5172	0.18
AF	Peterson AFB	CO	El Paso	157829	2	23493	17028	37.97	309028	29065	34237	9.41	-5172	0.18
AF	USAF Academy	CO	El Paso	157829	2	23493	17028	37.97	309028	29065	34237	9.41	-5172	0.18
AF	USAF- Farish Rec Area	CO	El Paso	157829	4	23493	17028	37.97	309028	29065	34237	9.41	-5172	0.18
Army	Ft Carson- Pinon Canyon	CO	Las Animas	235600	6	16233	11986	35.43	6828	45	65	0.66	-20	0.00
Army	Pueblo Ordnance Depot	CO	Pueblo	23121	4	20274	14180	42.98	67455	413	699	0.61	-286	0.02
Navy	New London Sub Base	CT	New London	1812	2	28466	20839	36.60	159109	10975	15752	6.90	-4777	6.06
Navy	Anacostia Nvl Station	DC	Washington	1842	1	35704	25646	39.22	712199	24417	25104	3.43	-687	13.26
AF	Bolling AFB	DC	Washington	1842	1	35704	25646	39.22	712199	24417	25104	3.43	-687	13.26
Navy	Nvl Research Lab. DC	DC	Washington	1842	1	35704	25646	39.22	712199	24417	25104	3.43	-687	13.26
AF	Dover AFB	DE	Kent	3908	2	20776	15665	32.63	66574	4771	5928	7.17	-1157	1.22
Navy	Panama City NCSS	FL	Bay	30218	1	20392	15102	35.03	81872	5350	5778	6.53	-428	0.18
AF	Tyndall AFB	FL	Bay	30218	2	20392	15102	35.03	81872	5350	5778	6.53	-428	0.18
AF	Cape Canaveral AFS	FL	Brevard	17776	2	22505	18170	23.86	223815	4003	5007	1.79	-1004	0.23
AF	Patrick AFB	FL	Brevard	17776	2	22505	18170	23.86	223815	4003	5007	1.79	-1004	0.23
Navy	Stevens Lake Rng	FL	Clay	NA	5	21604	17123	26.17	44873	317	243	0.71	74	NA
AF	Homestead ARB	FL	Dade	867	2	21688	17884	21.27	1168273	6528	11223	0.56	-4695	7.53
Navy	Jacksonville NAS	FL	Duval	6475	1	24355	18129	34.34	548301	30762	37297	5.61	-6535	4.75
Navy	Mayport Naval Station	FL	Duval	6475	2	24355	18129	34.34	548301	30762	37297	5.61	-6535	4.75
Navy	Corry Station Trng Cntr	FL	Escambia	8940	1	19852	15132	31.19	162103	15213	11447	9.38	3766	1.70
Navy	Kings OLF	FL	Escambia	8940	3	19852	15132	31.19	162103	15213	11447	9.38	3766	1.70
Navy	Pensacola NAS	FL	Escambia	8940	2	19852	15132	31.19	162103	15213	11447	9.38	3766	1.70
Navy	WFNAS- Sautley Fld	FL	Escambia	8940	2	19852	15132	31.19	162103	15213	11447	9.38	3766	1.70
AF	MacDill AFB	FL	Hillsborough	5631	2	23719	17248	37.52	644694	7673	9129	1.19	-1456	1.36
Navy	Pincastle Target Rng	FL	Marion	5825	6	19723	14971	31.74	101986	555	448	0.54	107	0.10
Navy	Key West NAS	FL	Monroe	5293	6	29657	21767	36.25	51049	1667	3123	3.27	-1456	0.32
AF	Eglin AFB	FL	Okaloosa	463452	2	22274	16270	36.90	105421	15815	13129	15.00	2686	0.03
AF	Avon Park Rng	FL	Polk	100929	6	20625	15368	34.21	217742	1052	1027	0.48	25	0.01
Navy	Rodman Bombing Rng	FL	Putnam	NA	6	15976	11797	35.42	21928	164	163	0.75	1	NA
Navy	WFNAS- Choctaw Fld	FL	Santa Rosa	11401	4	19527	15225	28.26	35666	1576	2070	4.42	-494	0.14
Navy	WFNAS- Harold Fld	FL	Santa Rosa	11401	5	19527	15225	28.26	35666	1576	2070	4.42	-494	0.14
Navy	WFNAS- Holley Fld	FL	Santa Rosa	11401	3	19527	15225	28.26	35666	1576	2070	4.42	-494	0.14
Navy	WFNAS- SantaRosa Fld	FL	Santa Rosa	11401	4	19527	15225	28.26	35666	1576	2070	4.42	-494	0.14
Navy	WFNAS- Spencer Fld	FL	Santa Rosa	11401	3	19527	15225	28.26	35666	1576	2070	4.42	-494	0.14
Navy	Whiting Field NAS	FL	Santa Rosa	11401	4	19527	15225	28.26	35666	1576	2070	4.42	-494	0.14
Navy	Kings Bay Sub Support	GA	Camden	16667	5	13664	12082	13.09	21841	5792	2066	26.52	3726	0.35
Army	Fort Benning	GA	Chattahoochee	184051	2	19068	12953	47.21	14300	12619	17209	88.24	-4590	0.07
Army	Ft McPherson- Ft Gillem	GA	Clayton	1424	1	20236	15881	27.42	126667	818	841	0.65	-23	0.57
AF	Dobbins AFB	GA	Cobb	7283	1	30263	22435	34.89	346871	3287	2809	0.95	478	0.45
MC	MC Logistics - Albany	GA	Dougherty	3841	2	20600	14635	40.76	67171	1214	1687	1.81	-473	0.32
Army	Fort McPherson	GA	Fulton	487	1	37800	26154	44.53	822595	4537	5145	0.55	-608	9.32
AF	Robins AFB	GA	Houston	8722	2	20050	15846	26.53	56502	4941	4319	8.74	622	0.57
Army	Fort Stewart	GA	Liberty	279271	3	13491	8673	55.55	31655	15972	14887	50.46	1085	0.06
AF	Moody AFB	GA	Lowndes	6050	6	19596	14083	39.15	53918	4356	3893	8.08	463	0.72
MC	Townsend Rng	GA	McIntosh	5183	5	14410	10825	33.12	3375	39	36	1.16	3	0.01
Army	Fort Gordon	GA	Richmond	55588	2	21465	17019	26.12	132545	10880	14355	8.21	-3475	0.20
AF	Boise Air Terminal	ID	Ada	1994	1	27887	19371	43.96	198244	1304	1139	0.66	165	0.65
AF	Mountain Home AFB	ID	Elmore	9000	6	16632	15260	8.99	13089	4311	4042	32.94	269	0.48
AF	Mtn Home Sm Arms Rng	ID	Elmore	9000	6	16632	15260	8.99	13089	4311	4042	32.94	269	0.48
Army	Pershing II Launch Site	ID	Owyhee	109000	6	14225	12519	13.63	3776	48	47	1.27	1	0.00

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AF	Saylor Creek Trng Rng	ID	Owyhee	109000	6	14225	12519	13.63	3776	48	47	1.27	1	0.00
Navy	Great Lakes Trng Cntr	IL	Lake	1030	2	40260	28201	42.76	376106	24499	26502	6.51	-2003	23.79
Army	CM Price Support Cntr	IL	Madison	686	1	23060	17842	29.25	123778	643	792	0.52	-149	0.94
Army	Rock Island Arsenal	IL	Rock Island	946	1	24730	18883	30.96	94848	593	808	0.63	-215	0.63
AF	Scott AFB	IL	St. Clair	3230	3	21153	15891	33.11	118733	6895	7903	5.81	-1008	2.14
Army	Camp Atterbury	IN	Bartholomew	35000	4	25276	18328	37.91	51444	250	328	0.49	-78	0.01
Army	Indiana AAP	IN	Clark	11347	3	21969	16016	37.17	53174	339	424	0.64	-85	0.03
Navy	Crane NSW Cntr	IN	Martin	62938	5	18730	13669	37.03	8873	105	102	1.18	3	0.00
AF	Grissom ARB	IN	Miami	3181	4	18794	13997	34.27	14200	139	2834	0.98	-2695	0.04
Army	Newport AAP	IN	Vermillion	7098	5	18850	14215	32.61	6998	70	91	1.00	-21	0.01
Army	Iowa AAP	IA	Des Moines	19124	6	22750	17101	33.03	29441	205	223	0.70	-18	0.01
Army	Camp Dodge	IA	Polk	4400	2	28271	20775	36.08	296285	1958	1855	0.66	103	0.45
Army	Fort Riley	KS	Geary/Riley	100671	6	17772	13083	35.84	25009	10141	17101	40.55	-6960	0.10
Army	Sunflower AAP	KS	Johnson	9542	3	36845	26350	39.83	316393	2103	2315	0.66	-212	0.22
Army	Kansas AAP	KS	Labette	13835	6	17944	14063	27.60	14224	115	153	0.81	-38	0.01
Army	Fort Leavenworth	KS	Leavenworth	5600	4	18738	14225	31.73	30997	3619	3852	11.68	-233	0.65
AF	Smoky Hill ANG Rng	KS	Saline	34000	6	26422	19898	32.79	38291	260	303	0.68	-43	0.01
AF	McConnell AFB	KS	Sedgwick	3113	2	24870	19395	28.23	303350	4936	5821	1.63	-885	1.59
Army	Fort Campbell	KY	Christian	105070	2	14651	11064	32.42	58620	24354	23461	41.55	893	0.23
Army	Fort Knox	KY	Hardin	109210	3	18262	13399	36.29	57411	9659	18953	16.82	-9294	0.09
Army	Blue Grass Army Depot	KY	Madison	14596	5	18249	13067	39.66	33413	250	350	0.75	-100	0.02
AF	Barksdale AFB	LA	Bossier	22361	2	20531	14215	44.43	50897	6199	6124	12.18	75	0.28
Navy	New Orleans NAS	LA	Plaquemines	4919	2	19580	14797	32.32	22333	924	848	4.14	76	0.19
Army	Fort Polk	LA	Vernon	198894	6	15471	10920	41.68	24172	8288	15356	34.29	-7068	0.04
Army	Louisiana AAP	LA	Webster	14974	4	17277	13019	32.71	16461	240	235	1.46	5	0.02
Navy	Brunswick NAS	ME	Cumberland	15910	4	28044	21231	32.09	204066	4291	5752	2.10	-1461	0.27
Navy	US Naval Radio Station	ME	Washington	596	6	16895	13405	26.04	17845	339	407	1.90	-68	0.57
Army	Fort Meade	MD	Anne Arundel	7416	2	28663	22301	28.53	269353	15745	17126	5.85	-1381	2.12
Navy	USN Academy	MD	Anne Arundel	7416	2	28663	22301	28.53	269353	15745	17126	5.85	-1381	2.12
Navy	Solomon's NRC	MD	Calvert	NA	6	25310	21046	20.26	23917	317	217	1.33	100	NA
Navy	Naval SWC- Indian Hd	MD	Charles	3410	3	24306	19496	24.67	46572	937	948	2.01	-11	0.28
Navy	Blood Isl Rng-Little Cr Fld	MD	Dorchester	6013	6	19860	15797	25.72	15717	127	158	0.81	-31	0.02
Army	Fort Detrick	MD	Frederick	1200	1	26270	20129	30.51	93200	1729	1669	1.86	60	1.44
Army	Aberdeen Proving Grnd	MD	Harford	72500	3	24510	19811	23.72	87007	4214	5806	4.84	-1592	0.06
AF	Andrews AFB	MD	Prince Georges	7550	1	25194	20733	21.52	385602	9691	10670	2.51	-979	1.28
Navy	Patuxent River NAS	MD	St Marys	7950	6	22823	16762	36.16	43453	3248	3825	7.47	-577	0.41
Navy	PR NAS - Webster Fld	MD	St Marys	7950	6	22823	16762	36.16	43453	3248	3825	7.47	-577	0.41
AF	Otis ARNG/Camp Edwards	MA	Barnstable	21000	3	30199	23453	28.76	118981	1352	1671	1.14	-319	0.06
AF	Westover AFB	MA	Hampden	2581	2	24795	19589	26.58	241892	1594	2379	0.66	-785	0.62
AF	Hanscom AFB	MA	Middlesex	1072	2	37326	27004	38.22	1020880	6977	15127	0.68	-8150	6.51
Army	Natick Soldier Center	MA	Middlesex	1072	2	37326	27004	38.22	1020880	6977	15127	0.68	-8150	6.51
Army	Devens Res. Trng Area	MA	Worcester	5000	3	26463	20061	31.91	391935	2530	3469	0.65	-939	0.51
Army	Camp Grayling	MI	Crawford	147000	6	14717	11714	25.64	5665	30	33	0.53	-3	0.00
AF	Selfridge ANGB	MI	Macomb	3070	2	25638	20943	22.42	401847	2054	2861	0.51	-807	0.67
Navy	Construct'n Battalion Cntr	MS	Harrison	4771	1	20285	13439	50.94	117324	12510	15478	10.66	-2968	2.62
Navy	Meridian NAS- Williams FldField	MS	Kemper	NA	6	14694	10196	44.12	3483	73	75	2.10	-2	NA
Navy	Meridian NAS	MS	Lauderdale	8000	6	20467	14604	40.15	45806	2001	3561	4.37	-1560	0.25
Navy	Alpha NAAS	MS	Noxubee	NA	6	14138	9422	50.05	5361	87	102	1.62	-15	NA
Navy	Multipurpose Target Rng	MS	Noxubee	NA	6	14138	9422	50.05	5361	87	102	1.62	-15	NA
Army	Lake City AAP	MO	Jackson	3950	3	24807	18802	31.94	472369	3387	3856	0.72	-469	0.86
AF	Whiteman AFB	MO	Johnson	4627	6	16940	12520	35.30	23597	3178	3461	13.47	-283	0.69
Army	Fort Leonard Wood	MO	Pulaski	64735	6	17487	11780	48.45	23045	9373	11742	40.67	-2369	0.15
AF	Malmstrom AFB	MT	Cascade	3573	2	21630	16379	32.06	48735	3964	4474	8.13	-510	1.11
Army	Fort William H Harrison	MT	Lewis & Clark	8500	6	21635	16262	33.04	37348	310	332	0.83	-22	0.04
AF	Offutt AFB	NE	Sarpy	4044	2	21501	15948	34.82	51836	8843	12914	17.06	-4071	2.19
Army	Mead ARNG	NE	Saunders	1000	5	20017	15018	33.29	8438	85	107	1.01	-22	0.09
Navy	Fallon NAS	NV	Churchill	223806	6	19724	15299	28.92	12181	1205	921	9.89	284	0.01

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										1997	1985			
Navy	Fallon NAS - Bravo 16	NV	Churchill	223806	6	19724	15299	28.92	12181	1205	921	9.89	284	0.01
Navy	Fallon NAS - Bravo 17	NV	Churchill	223806	6	19724	15299	28.92	12181	1205	921	9.89	284	0.01
Navy	Fallon NAS - Bravo 19	NV	Churchill	223806	6	19724	15299	28.92	12181	1205	921	9.89	284	0.01
Navy	Fallon NAS - Bravo 20	NV	Churchill	223806	6	19724	15299	28.92	12181	1205	921	9.89	284	0.01
AF	Nellis AFB	NV	Clark	11200	2	26212	19614	33.64	715062	9036	11266	1.26	-2230	0.81
AF	Nellis AFB- Indian Sprngs	NV	Clark	11200	6	26212	19614	33.64	715062	9036	11266	1.26	-2230	0.81
AF	Nellis AFB Sm Arms Rng	NV	Clark	11200	3	26212	19614	33.64	715062	9036	11266	1.26	-2230	0.81
Navy	Hawthorne Army Depot	NV	Mineral	147000	6	22475	16548	35.82	3081	19	77	0.62	-58	0.00
AF	Nellis Air Force Rng	NV	Nye	3100000	6	20402	15904	28.28	11294	70	73	0.62	-3	0.00
Army	Fort Dix	NJ	Burlington	34594	3	27849	21693	28.38	217844	6698	16433	3.07	-9735	0.19
AF	Mc Guire AFB	NJ	Burlington	34594	4	27849	21693	28.38	217844	6698	16433	3.07	-9735	0.19
Navy	Earle NWS - Mainside	NJ	Monmouth	12201	2	33952	26178	29.70	298649	4408	6016	1.48	-1608	0.36
Navy	Earle NWS - Waterfront	NJ	Monmouth	12201	1	33952	26178	29.70	298649	4408	6016	1.48	-1608	0.36
Army	Fort Monmouth	NJ	Monmouth	12201	1	33952	26178	29.70	298649	4408	6016	1.48	-1608	0.36
Army	Picatinny Arsenal	NJ	Morris	6493	2	42913	31764	35.10	324708	1237	1722	0.38	-485	0.19
Navy	Lakehurst NASC	NJ	Ocean	7431	2	25725	20935	22.88	173217	1685	2600	0.97	-915	0.23
AF	Kirtland AFB	NM	Bernalillo	52678	2	24478	17472	40.10	376473	6668	7663	1.77	-995	0.13
AF	Cannon AFB	NM	Curry	4536	6	17297	13479	28.33	23197	4241	4057	18.28	184	0.94
Army	White Sands Missile Rng	NM	Dona Ana	2285327	4	14923	12399	20.36	68690	721	689	1.05	32	0.00
Army	Fort Bliss McGregor Rng	NM	Otero	737739	3	15803	12377	27.68	27891	4899	7849	17.56	-2950	0.01
AF	Holloman AFB	NM	Otero	737739	6	15803	12377	27.68	27891	4899	7849	17.56	-2950	0.01
AF	Melrose Rng	NM	Roosevelt	NA	6	14967	12850	16.47	7565	71	93	0.94	-22	NA
Army	Fort Drum	NY	Jefferson	107265	6	17918	14555	23.11	60173	10728	1491	17.83	9237	0.10
AF	Hancock Field	NY	Onondaga	371	2	24933	19875	25.45	304659	1293	1922	0.42	-629	3.49
MC	MC Reserve Trng Cntr	NY	Onondaga	371	1	24933	19875	25.45	304659	1293	1922	0.42	-629	3.49
Army	USMA West Point	NY	Orange	16000	3	23096	19129	20.74	150954	6378	7595	4.23	-1217	0.40
Army	Seneca Army Depot	NY	Seneca	10634	6	20597	16348	25.99	13732	85	759	0.62	-674	0.01
Army	Ocean Terminal Sunny Pt	NC	Brunswick	16000	3	17978	13764	30.62	27864	258	220	0.93	38	0.02
MC	Cherry Point Rng BT-9	NC	Carteret	3875	6	20798	14612	42.34	30257	431	571	1.42	-140	0.11
MC	ChPt MCAS – Bogue Fld	NC	Carteret	3875	5	20798	14612	42.34	30257	431	571	1.42	-140	0.11
MC	Cherry Point MCAS	NC	Craven	13164	6	20747	14627	41.84	55707	8310	11252	14.92	-2942	0.63
Army	Fort Bragg	NC	Cumberland	162567	2	20219	13334	51.63	173254	47145	48282	27.21	-1137	0.29
AF	Pope AFB	NC	Cumberland	162567	2	20219	13334	51.63	173254	47145	48282	27.21	-1137	0.29
AF	Cherry Pt Dare Cty Rng	NC	Dare	10000	6	21624	16229	33.24	22239	237	186	1.07	51	0.02
Navy	ChPt MCAS-OakGroveFld	NC	Jones	900	5	22449	14970	49.96	3035	29	36	0.96	-7	0.03
MC	Camp LeJeune	NC	Onslow	127439	2	16900	10532	60.46	86617	37927	39012	43.79	-1085	0.30
Army	Ft Bragg- Camp Mackall	NC	Richmond	6542	6	17210	13217	30.21	20175	147	174	0.73	-27	0.02
AF	Seymour Johnson AFB	NC	Wayne	3233	2	18611	13218	40.80	58656	4751	5390	8.10	-639	1.47
AF	Grand Forks AFB	ND	Grand Forks	5422	3	20138	14687	37.11	48955	4833	6059	9.87	-1226	0.89
AF	Minot AFB	ND	Ward	5085	6	20190	15042	34.22	40330	5042	6663	12.50	-1621	0.99
Navy	DSC - Columbus	OH	Franklin	551	1	26647	19648	35.62	804406	3362	3955	0.42	-593	6.10
AF	Wright-Patterson AFB	OH	Greene	8145	2	23653	17696	33.66	69512	4134	5960	5.95	-1826	0.51
Army	Ravenna AAP	OH	Portage	21420	3	21478	15698	36.82	71711	423	541	0.59	-118	0.02
Army	Fort Sill	OK	Comanche	94220	2	17487	13562	28.94	62395	14984	20460	24.01	-5476	0.16
AF	Vance AFB	OK	Garfield	4555	6	21474	16429	30.71	34667	1345	1736	3.88	-391	0.30
AF	Altus AFB	OK	Jackson	6981	6	16753	13270	26.25	15866	2344	3875	14.77	-1531	0.34
AF	Tinker AFB	OK	Oklahoma	5000	1	23236	18111	28.30	488866	11385	11527	2.33	-142	2.28
Army	McAlester AAP	OK	Pittsburg	44964	6	16390	12431	31.85	19843	225	279	1.13	-54	0.01
Army	Camp Rilea	OR	Clatsop	2000	6	21176	16745	26.46	21833	481	472	2.20	9	0.24
AF	Kingsley Field AGS	OR	Klamath	1072	6	18466	13948	32.39	32065	236	298	0.74	-62	0.22
Navy	WINAS - Boardman Rng	OR	Morrow	47000	6	15585	15343	1.58	5280	53	74	1.00	-21	0.00
Army	Umatilla Chemical Depot	OR	Umatilla	19729	6	19013	13929	36.50	34907	244	309	0.70	-65	0.01
Army	Site R - Raven Rock	PA	Adams	718	4	21540	17265	24.76	41175	294	335	0.71	-41	0.41
Army	DDD Susquehanna	PA	Cumberland	1672	2	27296	20920	30.48	154694	1518	1634	0.98	-116	0.91
Navy	Inv. Cntrl - Mechanicsburg	PA	Cumberland	1672	1	27296	20920	30.48	154694	1518	1634	0.98	-116	0.91
Army	Fort Indiantown Gap	PA	Dauphin	17902	3	27193	20225	34.45	203304	927	1427	0.46	-500	0.05
Army	Letterkenny Army Depot	PA	Franklin	19243	5	22249	16802	32.42	66313	448	649	0.68	-201	0.02

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										1997				1985
Navy	Willow Grove NAS	PA	Montgomery	1100	2	40249	30592	31.57	560489	3882	4143	0.69	-261	3.53
Navy	Newport Trng Cntr	RI	Newport	1214	2	27558	20582	33.89	48588	4127	6536	8.49	-2409	3.40
MC	Beaufort MCAS	SC	Beaufort	15013	6	25599	19579	30.75	72354	11701	11905	16.17	-204	0.78
MC	Bft MCAS - Laurel Bay Housing	SC	Beaufort	15013	6	25599	19579	30.75	72354	11701	11905	16.17	-204	0.78
MC	Parris Isl Recruit Depot	SC	Beaufort	15013	6	25599	19579	30.75	72354	11701	11905	16.17	-204	0.78
Navy	Charleston NWS	SC	Berkeley	17429	2	15147	12844	17.93	39402	800	886	2.03	-86	0.05
AF	Charleston AFB	SC	Charleston	3733	1	21670	16856	28.56	224147	9735	32685	4.34	-22950	2.61
Army	Fort Jackson	SC	Richland	52301	2	23874	17661	35.18	250755	11825	14310	4.72	-2485	0.23
AF	Shaw AFB	SC	Sumter	3363	2	16883	12510	34.96	55166	5732	6999	10.39	-1267	1.70
AF	Ellsworth AFB	SD	Pennington	10632	3	21270	15518	37.07	62085	3612	6717	5.82	-3105	0.34
Army	Milan Arsenal	TN	Gobson	22624	4	19487	14043	38.77	25337	206	268	0.81	-62	0.01
Navy	Memphis NAS	TN	Shelby	3450	3	27300	19123	42.76	606548	4869	16262	0.80	-11393	1.41
Army	Camp Swift NG Facility	TX	Bastrop	11700	5	18530	13288	39.45	16441	137	109	0.83	28	0.01
Army	Fort Hood	TX	Bell	217345	2	19714	14275	38.10	149803	43824	40028	29.25	3796	0.20
AF	Brooks AFB	TX	Bexar	28368	1	22505	15941	41.18	794833	37110	43513	4.67	-6403	1.31
Army	Camp Bullis	TX	Bexar	28368	2	22505	15941	41.18	794833	37110	43513	4.67	-6403	1.31
Army	Fort Sam Houston	TX	Bexar	28368	1	22505	15941	41.18	794833	37110	43513	4.67	-6403	1.31
AF	Lackland AFB	TX	Bexar	28368	2	22505	15941	41.18	794833	37110	43513	4.67	-6403	1.31
AF	Randolph AFB	TX	Bexar	28368	2	22505	15941	41.18	794833	37110	43513	4.67	-6403	1.31
Army	Red River Army Depot	TX	Bowie	19081	3	21254	15757	34.89	47860	252	348	0.53	-96	0.01
Army	Fort Bliss	TX	El Paso	1126514	2	15216	11852	28.38	307899	11679	19666	3.79	-7987	0.01
Army	Longhorn Ordnance AAP	TX	Harrison	8493	5	18083	13846	30.60	28470	166	190	0.58	-24	0.02
Navy	Kingsville NAS	TX	Kleberg	16334	6	16445	11884	38.38	14194	747	1834	5.26	-1087	0.05
Navy	Corpus Christi NAS	TX	Nueces	4506	2	20673	15462	33.70	179694	3786	3447	2.11	339	0.84
Army	Fort Wolters	TX	Parker	NA	6	21584	15915	35.62	29063	220	180	0.76	40	NA
AF	Carswell Air Reserve	TX	Tarrant	NA	1	25818	19388	33.16	812265	4572	8712	0.56	-4140	NA
AF	Dyess AFB	TX	Taylor	6405	2	21202	15728	34.80	79961	5074	5788	6.35	-714	0.79
AF	Goodfellow AFB	TX	Tom Green	1136	3	20968	15610	34.32	62313	3399	2471	5.45	928	2.99
AF	Laughlin AFB	TX	Val Verde	5131	6	12942	10221	26.62	18065	1388	3115	7.68	-1727	0.27
AF	Sheppard AFB	TX	Wichita	6158	2	21632	16455	31.46	82998	8229	9204	9.91	-975	1.34
AF	Hill AFB	UT	Davis	6698	1	19954	14030	42.22	111499	5546	6763	4.97	-1217	0.83
Army	Green Rvr Launch Cmpix	UT	Grand	NA	6	16247	11902	36.51	5495	45	60	0.82	-15	NA
Army	Deseret Chemical Depot	UT	Tooele	843027	6	17542	13493	30.01	13936	266	511	1.91	-245	0.00
Army	Dugway Proving Grounds	UT	Tooele	843027	6	17542	13493	30.01	13936	266	511	1.91	-245	0.00
Army	Tooele Army Depot	UT	Tooele	843027	5	17542	13493	30.01	13936	266	511	1.91	-245	0.00
AF	Utah Test Rng (North)	UT	Tooele	843027	6	17542	13493	30.01	13936	266	511	1.91	-245	0.00
AF	Utah Test Rng (South)	UT	Tooele	843027	6	17542	13493	30.01	13936	266	511	1.91	-245	0.00
Army	Camp Williams	UT	Utah	25000	2	16567	11549	43.45	174766	1851	2002	1.06	-151	0.07
AF	Hill AFB- Little Mtn Annex	UT	Weber	NA	5	20650	15128	36.50	109307	1039	1416	0.95	-377	NA
Army	Camp Johnson	VT	Chittenden	NA	2	26840	20546	30.63	111920	1135	1127	1.01	8	NA
Army	Ethan Allen Firing Rng	VT	Chittenden	NA	4	26840	20546	30.63	111920	1135	1127	1.01	8	NA
Army	Fort A. P. Hill	VA	Caroline	76000	4	18770	15077	24.49	6468	126	186	1.95	-60	0.00
Navy	Oceana NAS - Fentress	VA	Chesapeake	2406	2	21457	17462	22.88	93303	1992	1238	2.14	754	0.83
Army	Fort Pickett	VA	Dinwiddie	45160	6	22730	16946	34.13	38446	303	385	0.79	-82	0.01
Army	Fort Belvoir	VA	Fairfax	8656	2	39951	29930	33.48	647544	7273	10603	1.12	-3330	0.84
Army	Fort Monroe	VA	Hampton	4222	2	19973	15666	27.49	80005	9428	11281	11.78	-1853	2.23
AF	Langley AFB	VA	Hampton	4222	1	19973	15666	27.49	80005	9428	11281	11.78	-1853	2.23
Navy	Naval SWC - Dahlgren	VA	King George	4321	6	23319	18482	26.17	10981	863	252	7.86	611	0.20
Army	Fort Eustis	VA	Newport News	8229	2	20258	15826	28.00	115428	7944	9254	6.88	-1310	0.97
Navy	Norfolk Naval Station	VA	Norfolk	3400	2	20221	15063	34.24	234424	62713	75656	26.75	-12943	18.45
Army	Craney Isl Fuel Depot	VA	Portsmouth	801	2	19648	15257	28.78	52783	5324	5007	10.09	317	6.65
Navy	Norfolk Shipyard	VA	Portsmouth	801	1	19648	15257	28.78	52783	5324	5007	10.09	317	6.65
Army	Fort Lee	VA	Prince George	5574	2	19234	15013	28.12	28547	5718	6472	20.03	-754	1.03
MC	Quantico MC Base	VA	Prince William	60483	3	24483	19709	24.22	128394	6424	5604	5.00	820	0.11
Army	Radford AAP	VA	Pulaski	6901	6	18036	13531	33.29	18854	135	165	0.72	-30	0.02
Army	Radford AAP - New Rvr	VA	Pulaski	6901	6	18036	13531	33.29	18854	135	165	0.72	-30	0.02
Navy	Dam Neck Trng Cntr	VA	Virginia Beach	29408	1	24425	19526	25.09	215127	22208	26516	10.32	-4308	0.76

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										1997	1985			
Army	Fort Story	VA	Virginia Beach	29408	2	24425	19526	25.09	215127	22208	26516	10.32	-4308	0.76
Navy	Little Creek NAB	VA	Virginia Beach	29408	2	24425	19526	25.09	215127	22208	26516	10.32	-4308	0.76
Navy	Oceana NAS	VA	Virginia Beach	29408	1	24425	19526	25.09	215127	22208	26516	10.32	-4308	0.76
Navy	Camp Peary	VA	York	24101	3	24008	20195	18.88	24610	2001	1958	8.13	43	0.08
Navy	Yorktown NWS	VA	York	24101	2	24008	20195	18.88	24610	2001	1958	8.13	43	0.08
Navy	Yorktwn NWS- Cheatham	VA	York	24101	2	24008	20195	18.88	24610	2001	1958	8.13	43	0.08
Navy	Whidbey Island NAS	WA	Island	71059	6	21776	16310	33.51	31627	8170	7443	25.83	727	0.12
Navy	WINAS – Ault Field	WA	Island	71059	6	21776	16310	33.51	31627	8170	7443	25.83	727	0.12
Navy	Indian Island Magazine	WA	Jefferson	2700	6	22104	17799	24.19	11949	110	106	0.92	4	0.04
Navy	Bangor Nvl Sub Base	WA	Kitsap	8104	2	21580	17577	22.77	113468	16661	10796	14.68	5865	2.06
Navy	Puget Sound Shipyard	WA	Kitsap	8104	1	21580	17577	22.77	113468	16661	10796	14.68	5865	2.06
Army	Fort Lewis	WA	Pierce	90792	2	22511	17358	29.69	319342	24362	34273	7.63	-9911	0.27
AF	McChord AFB	WA	Pierce	90792	2	22511	17358	29.69	319342	24362	34273	7.63	-9911	0.27
AF	Fairchild AFB	WA	Spokane	4551	4	22293	16630	34.05	240713	5500	6089	2.28	-589	1.21
Army	Yakima Firing Center	WA	Yakima	323400	3	19367	15531	24.70	114961	965	1051	0.84	-86	0.00
Army	Volk Field CRTC	WI	Juneau	2336	6	17503	13370	30.91	12590	90	102	0.71	-12	0.04
Army	Fort McCoy	WI	Monroe	127730	6	17391	13246	31.29	22327	291	327	1.30	-36	0.00
AF	Francis E Warren AFB	WY	Laramie	5866	2	22815	17938	27.19	51166	3949	4286	7.72	-337	0.67

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1. REPORT DATE (DD-MM-YYYY) 01-2002		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Urban Encroachment of Military Lands: Military Installations at Risk				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Brian M. Deal, Diane M. Timlin, and William D. Goran				5d. PROJECT NUMBER 622720A896	
				5e. TASK NUMBER CFE	
				5f. WORK UNIT NUMBER T141FF	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Construction Engineering Research Laboratory (CERL) PO Box 9005 Champaign, IL 61826-9005				8. PERFORMING ORGANIZATION REPORT NUMBER ERDC/CERL TR-02-3	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Headquarters, U.S. Army Corps of Engineers (HQUSACE) 441 G St., NW. Washington, DC 20314-1000				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES Copies are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.					
14. ABSTRACT Extreme urban growth and the resultant patterns of development are undermining the military community's ability to maintain mission focus. This paper defines the problem of urban encroachment on military lands and outlines some possible approaches to finding and developing solutions. Among the strategies suggested are more and continued community/installation dialogue, simulation modeling to ascertain future scenarios and possible environmental and planning impacts, and methodologies for the development of regionally based sustainable indices to encourage sustainable and well coordinated planning solutions.					
15. SUBJECT TERMS land use planning urbanization sustainable facilities encroachment military lands risk assessment					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT SAR	18. NUMBER OF PAGES 40	19a. NAME OF RESPONSIBLE PERSON Brian M. Deal
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code) (217) 352-6511, X-7461